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THE KNOWN AND THE UNKNOWN ABOUT PSORIASIS *

JAY FRANK SCHAMBERG, M.D.

PHILADELPHIA

Psoriasis, the great dermatologic mystery, is an affliction that has been known since the days of the early Greeks. Much has been learned concerning its symptomatology, its diagnosis, its course, its histopathology, and not a little about its treatment. Concerning its true nature and cause, a maze of speculation has been indulged in, which still clutters the textbooks of today.

In this communication, an effort will be made to separate the wheat from the chaff, and to formulate what has been demonstrated and should therefore be retained, and what should be discarded as untenable conjecture.

I have analyzed the histories of 592 private psoriasis patients that have been under my care.

Regarding sex, there were 281 males suffering from psoriasis, and 244 females. The preponderance of males is rather less marked than in some European figures. Concerning the age at which the psoriasis first developed, data are available on 492 cases. Classification according to age decades is made in Table 1.

Sixty-seven per cent. of all cases of psoriasis began between the ages of 11 and 30.

Much is written about the hereditary transmission of psoriasis. I think that it is scientifically more accurate for us to speak of family incidence rather than of heredity. We have no proof whatsoever of heredity in this disease. All that we do know is that psoriasis is not uncommon among other members of the family of psoriatic subjects.

The frequency of multiple cases in families varies considerably. Some authors have quoted the incidence as high as 25 per cent.

In my group of cases, there were seventy-five instances, which would represent 13 per cent. If we reverse these figures, we find that, in 87 per cent of the cases, there was no other member of the family affected.

We are often approached by psoriatic patients who contemplate marriage, who inquire as to the likelihood of transmission to the offspring. In my group of cases, there were thirty parents of patients who had psoriasis. This represents only 5 per cent. of the cases. In 95 per cent. of the cases, therefore, there was no ancestral history of psoriasis.

The figures of the familial incidence of psoriasis are given in Table 2.

It will be noted that there are two instances of husband and wife suffering from psoriasis. This association is, of course, most suggestive as indicating the possibility of transference of the disease from one to the other. Perhaps the force of such a suggestion as evidential value is lessened by the fact that this small incidence of conjugal psoriasis occurred among nearly 600 cases of psoriasis, including, I presume, about 300 married subjects.

The first case was that of a physician in whom the psoriasis began at the age of 56, following an attack of influenza. The eruption was profuse and severe, involving a considerable area of the body and face. His wife had had psoriasis during the greater part of her life.

The second case relates to a man, aged 37, in whom the eruption began at 35. He had two rounded areas of psoriasis on the legs, of a diameter of about 1.5 cm. This patient's wife had had an extensive acute psoriasis, but she had been free from it for a period of five years. She was therefore free of eruption three years before her husband was attacked.

Outbreaks are influenced by seasonal conditions. In this climate, the vast majority of patients are better in the summer and worse in the cold seasons. Recurrences are not uncommon with change of season in the spring and fall. The disease is extremely rare in colored people. I have never seen a case in a full blooded negro, although we have a very large colored population in Philadelphia. Psoriasis is but rarely seen in the Orient and in the tropics. Many assumptions might be suggested for these exemptions, but they are still within the realm of conjecture.

The various etiologic factors that have been alleged to be associated with psoriasis are:

Rheumatic and gouty tendency.
Defective renal elimination.
Defective assimilation of food.
Pancreatic disease.
Digestive and nutritive disorders.
Disturbances of the nervous system: fright; shock: neurotic conditions.
Tuberculosis.
Endocrine disturbances.
Parasitism.
Disorders of metabolism, etc.

Rheumatism and gout are commonly linked in the same etiologic suggestion. In the light of present knowledge, these two conditions must be trenchantly separated. Rheumatism, if it connotes anything definite and accurate, means an infectious process. About 7 per cent. of my patients suffered at one period or another from muscular or joint pains or swellings.

* Read before the Section on Dermatology and Syphilology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

This means that about 93 per cent. were free of so-called "rheumatism." No further comment is needed.

Many of the older English and French dermatologists believed in a relation between gout and psoriasis. Liveing considered gout an important etiologic factor. Mention of gout as a possible causative influence is contained in most of the modern textbooks on dermatology.

Dr. George W. Raiziss and I carried out, a few years ago, some studies (which have never been published) on the purin metabolism of psoriatic patients. This work, which was done in accordance with the best modern technical methods, definitely demonstrated that there was no disturbance of the uric acid metabolism in patients suffering from psoriasis. During the last two years, Mr. H. Brown and I have studied the blood uric acid of many psoriasis patients. It may be stated that, unless there is coincidentally a distinct renal factor present, the blood uric acid is normal. The vast majority of patients with psoriasis have normal blood uric acid values. The question of any etiologic relationship between gout and psoriasis may be answered definitely in the negative. Let gout, as an etiologic factor in psoriasis, therefore, be thrown into the discard of antiquated conceptions.

TABLE 1.—*Age Incidence*

	Number of Cases
5 years of age and under	23
6 years to 10 years	42
11 years to 20 years	164
21 years to 30 years	168
31 years to 40 years	68
41 years to 50 years	23
51 years to 60 years	1
61 years to 70 years	3

There is no demonstrated evidence that psoriasis is associated with any disorder of the gastro-intestinal tract. I have seen two or three patients who had an associated diabetes and psoriasis, but this was obviously a coincidence. We have no evidence of pancreatic disease in psoriasis. Hebra was in the habit of stating that psoriasis patients were "blooming healthy individuals." Psoriasis was regarded as a "morbus fortium." While this may be, in a sense, true, every physician of experience has seen numerous cases likewise in the weak and the frail. There is no special habit of body or any nutritive disorder associated with psoriasis.

Attacks of psoriasis have been reported in the literature as coming on after shock, fright and similar causes. Some authors have suggested a neuropathic origin as the cause of the disease. In such a capricious disease as psoriasis, one may expect at times that an attack may appear (as indeed it may) or disappear, after all sorts of diseases, or morbid agencies. In no malady is the *post hoc propter hoc* reasoning so liable to lead one into error. I can find no adequate scientific basis to warrant psoriasis being regarded as a disease of nervous origin.

More recently an endocrine origin of psoriasis has been suggested. While roentgen-ray stimulation of the thymus gland appears, in a proportion of cases, to bring about a favorable influence on the eruption, there appears to me no parallelism between psoriasis and any disease of ductless gland origin.

We come now to a consideration of the remaining two hypotheses—the metabolic and the parasitic. Both theories have numerous advocates, and there are many fragments of evidence in favor of each. It is not my purpose in this communication to discuss the merits of the one or the other hypothesis. I may remark that Dr. Kolmer and I, as well as many other physicians, have isolated a considerable number of organisms from the skin in psoriasis, but no parasite thus far found can be incriminated as the cause. We have on scores of occasions made cultures of the blood. We have implanted buttons of skin from patients with psoriasis into the skin of monkeys, but to no avail. Drs. Kolmer, Ringer, Raiziss and I believe, on the basis of extensive studies, that there is a nitrogen retention in psoriasis, but there has been no independent investigation to confirm or negate this finding. Mr. Brown and I have recently studied the blood content of phosphorus, calcium, magnesium and potassium in a number of cases of psoriasis, without finding a deviation from the normal.

I do not believe that any living person possesses the scientific data that would warrant him in dogmatically affirming or denying the truth of either the parasitic or the metabolic hypothesis. The solution of the problem is for the future to determine.

There are some interesting phenomena of the disease, which, from the point of view of treatment, it may not be unprofitable to discuss.

The eruption of psoriasis pursues a cycle: there is a stage of progression or active evolution, a stage of quiescence, and at times a stage of spontaneous involution or regression. Whatever may be our views as to the seat of the initial pathologic process in the skin, we all agree that the affection is accompanied by a great proliferation of epithelial cells, which push toward the surface and are cast off in the form of scales. From time to time, we observe periods of progression or regression which, owing to our lack of knowledge we are unable to explain. There is, of course, a stimulus to epithelial cell growth with each outbreak of psoriasis, for every effect must have a cause but the nature of this stimulus is not yet known. We believe that the epithelial growth impulse may be intensified or weakened by certain therapeutic agencies, and to this reference will be presently made.

Every dermatologist observes cases from time to time which remain active, inflammatory and progressive, despite approved treatment. In these cases, for some reason or other, the reproductive impulse of the epithelial cells is persistent and resistant. It is a commonplace to encounter patients in whom chrysarobin and arsenic, instead of doing good, cause an extension of the disease. In the stage of activity, areas of skin vascularized by local irritants become the seat of the psoriatic process. This occurs only in the stage of activity or progression.

TABLE 2.—*Family Incidence*

Father and son	10	Father and child	22
Father and daughter	12		
Mother and son	3	Mother and child	8
Mother and daughter	5		
Brother and brother	16	Brothers and sisters	32
Brother and sister	8		
Sister and sister	8		
Husband and wife	2		
Collateral	11		

In 1909, I carried out a series of experiments on the production of factitious lesions, in twenty-three psoriatic patients, by linear scarification. In only three patients could new lesions be evoked by this method,

and these occurred in cases during the progressive stage. In one of these patients, quiescence of the eruption developed, and later artificial attempts to provoke lesions failed.

The foregoing considerations have an important bearing on treatment.

Until the cause of the disease is discovered, the most essential principle of therapeutics in psoriasis is to *inactivate the psoriatic process;* i. e., to convert the active into an inactive or quiescent stage. Then, previously ineffectual remedies become effective. Failure in clearing up the eruption in psoriasis is not caused by ignorance of what remedies to use, but when to use them. Even the roentgen ray, a useful palliative agent, commonly fails when used during an inappropriate stage. The failure to recognize the inefficacy of roentgen-ray therapy in an active psoriasis has sometimes led to this method of treatment being persisted in to an unwarranted degree. I have seen cancer of the skin follow such ill advised efforts. We do not know what causes bring about the natural subsidence of the psoriatic process. We have some knowledge, however, of therapeutic measures that tend to accomplish the same end. I shall proceed to enumerate some of these agencies.

First let me refer to a low protein diet. I know that this phrase will meet with a skeptical and unresponsive reception, for reasons which to me are readily comprehensible. There are many dermatologists who state that they have tried dietary restriction in psoriasis, but have failed to observe the beneficial results claimed for this method of treatment. There are few if any dermatologists, however, who have tried a low protein diet in psoriasis in the sense in which my colleagues Kolmer, Ringer and Raiziss and I employed this term in 1913. Merely to remove animal foods from the dietary, and to permit the patient to partake of unlimited quantities of other pabulum would not be in consonance with the principle of a low protein diet. If one places a psoriasis patient for a number of weeks on a diet containing about 4 gm. of nitrogen a day, without other treatment, one will observe, particularly in extensive eruptions, an astonishing involution. Per contra, a diet of 20 gm. of nitrogen a day will tend to aggravate an existing eruption. The interpretation of these observations need not be discussed in this paper, but I have complete conviction of their truth. I grant that a dietary regimen of this character is irksome, and possible to carry out only in hospital patients, and under ideal conditions. As an adjuvant to other treatment, however, a less drastic dietary restriction is advantageous.

There are often simpler and more rapid means of bringing about an inactivation of the psoriatic process. During acute illnesses, a psoriasis will often retrogress, as the result of some sort of "systemic commotion." A similar influence can commonly be brought about by inducing various forms of foreign protein reactions.

Different substances and methods have from time to time been advocated. The intravenous injection of vegetable proteins such as an extract of alfalfa seed, suggested by Van Alsten; the injection of an enterovaccine containing chiefly the fecal streptococcus and colon bacillus, advocated by Danysz and warmly commended by Sabouraud; the subcutaneous or intravenous injection of a typhoid or colon bacillus vaccine, and finally, autoserum injections. All these agencies doubtless act in a similar manner but in different degrees. They all produce a leukocytosis, proportionate in large part to the degree of reaction induced. They may have other side effects on antibody production, on the blood and skin enzymes, and likewise an influence on metabolism. Further light is needed on the exact biologic effects induced. One of the most useful of these procedures is autoserum injections, first advocated by Spiethoff and later recommended by Gottheil, Fox and others. The value of this method was too extravagantly lauded in the beginning and too much neglected later on. It was generally admitted that psoriatic eruptions that would not tolerate chrysarobin were marvelously benefited by this medicament after a few autoserum injections. The proper interpretation of the effect, I believe, is that the injection tends to inactivate the psoriasis and aid in inducing a state of quiescence. During this stage, the roentgen rays, chrysarobin, and many other measures, promptly effect a disappearance of the eruption. While autoserum injections do not act equally well in all cases, my experience is that they constitute a valuable therapeutic measure. There are a few cases that are refractory to inactivation by any procedure. It is possible that certain drugs, injected intravenously or intramuscularly, may, without design, produce a secondary foreign protein effect.

If we can gain increased light on the modus operandi of remedies in a disease of unknown origin, it may lead later to a more accurate interpretation of the nature of the morbid process involved.

ABSTRACT OF DISCUSSION

DR. AUGUSTUS RAVOGLI, Cincinnati: In psoriasis I start with the theory that it is a case of poison in the general system. I was with Professor Auspitz at the time he formulated his theory of psoriasis. We put some scales of psoriasis on our arms trying to get an inoculation, but nothing came of it. Consequently, the parasitic theory of psoriasis fell down. The experience of other investigators was the same. I believe that in psoriasis there is a possibility of some hereditary factor. Perhaps this disorder has affected the internal glands, very likely the hypophysis, just as happens in multiple fibromatosis. In psoriasis the first effect is on the epidermis. We see little points covered with loose epidermis. Hence, the process is not a deep one, which is proved by the absence of pruritus. There is very little pruritus in psoriasis. In the treatment of psoriasis, I use cacodylic acid, 10 per cent. solution, giving a subcutaneous injection twice a week or once a week, according to the indications. I have never had any result whatever from sodium cacodylate. I have also used a 2 per cent. solution of chrysarobin in an ointment, having the patients rub this onto the skin, and when hard and infiltrated lesions are present I use an ointment containing ammoniated mercury with phenol (carbolic acid), which has given me the most satisfactory results. As to removing the proteins from the diet, I have seen many patients, particularly female patients, who have come to me in such a weakened condition that they could hardly stand because they had not eaten any meat for several months. They were, perhaps, a little better as the result of this treatment, but afterwards, the anemic condition made the psoriasis much worse than before. I have seen the roentgen ray give some temporary improvement in some cases, but it sometimes aggravates the psoriasis with an itching, burning dermatitis.

DR. SAMUEL AYRES, JR., Los Angeles: There seem to be several outstanding etiologic factors of psoriasis. The appearance of psoriasis after an acute infection is a finding that I think many have made. I do not say that an acute infection causes psoriasis, but I believe that the psoriasis is latent and that the acute infection brings it out. Atrophic arthritis also seems to have a connection with this disease. Several patients with severe atrophic arthritis with psoriasis of equal severity have been observed, and similar cases have doubtless been seen by others. In these conditions I feel

that the association is more than a matter of coincidence. Whether it is due to the infection or to metabolic phenomena, I am not prepared to say. In another instance, a woman had had an attack of psoriasis at intervals for sixteen years, always occurring during pregnancy. She had four pregnancies at four year intervals. The psoriasis would appear at about the sixth month of pregnancy, remain until the end, and clear up about two years post partum and remain away until the next pregnancy, when the same process would be repeated in approximately the same way. That is certainly more than coincidence. There was no dietary treatment, no local treatment, and the eruption in each instance disappeared spontaneously. I do not wish to condemn a good therapeutic agent, but I have seen a patient with roentgen-ray atrophy following the use of roentgenotherapy, and the psoriasis recurred just as badly in the areas that had been treated to the point of atrophy as anywhere else. It is questionable, to my mind, whether a treatment that is a two-edged sword is justifiable in a benign recurring disorder, such as psoriasis.

DR. F. L. BURNETT, Boston: I do not think that Dr. Schamberg has taken a quite sufficiently critical attitude regarding the dietary treatment. During the last few years, I have had an opportunity to study psoriasis as a nutritive disorder. From this point of view, the proper nourishment of the body is dependent on the ingested materials, or the alimentary mixtures that complete the cycle of digestion and absorption, as determined by the intestinal rate and the form of the feces. In this way the dietary treatment is regulated and controlled by the very sensitive automatic and at the same time very critical functions of the intestines; and the alimentary mixture in amount, refinement, proportion and completeness has to be about right for the nutritive needs of the most highly perfected animal. The patients with psoriasis that I have studied invariably have one or more of the faulty food factors to correct in order to improve the alimentary mixture. Many of the patients ate too fast and too much; some frequently ate between meals, and an excess of sweet, fat, highly spiced food or fruit. A few were constantly taking cathartics. When the patients were educated to eliminate the faulty food factors for a sufficient length of time, the health of the body improved and the condition of the skin gradually became normal. This state, however, continued only as long as the patients kept the body properly nourished; and if they again went back to their bad habits of eating, they were subject to malassimilation. Accordingly, with psoriasis it is a matter not only of relieving the condition of the skin, but also of controlling the nutritive requirements of the body for some time afterwards, in order to prevent another attack. To control the nutritive needs of the body, it is advisable to have the patients keep a record for a week of the food ingested, the time spent at meals, the time and kind of digestion, and a test of the intestinal rate. If the assimilation as determined by the intestinal rate is not sufficient, the patient must correct the faulty food habits and bring in another and better record in a few weeks. When the record has improved, the patient should continue to report at least once a month for a long time in order to insure the maintenance of health.

DR. HOWARD FOX, New York: The occurrence of psoriasis in the full blooded negro is very rare. I had never seen an extensive eruption of psoriasis in a full blooded negro until last winter, when a case was presented in New York by Dr. Parounagian and one by myself. In Dr. Parounagian's case the diagnosis was at first clouded by the presence of a positive Wassermann test. In my own case the Wassermann test was negative, and the diagnosis was confirmed by histologic examination. I was interested to hear Dr. Schamberg speak of the comparatively slight familial tendency and still smaller factor of heredity in psoriasis, agreeing with my own impressions on this subject. As to treatment, I feel that a warning should be sounded regarding the use of the roentgen ray. While I consider this agent to be of the greatest value, in general, for treating skin diseases, it should be used with great care in psoriasis. It should be used only in selected cases by those who are thoroughly conversant with its action.

DR. EVERETT S. LAIN, Oklahoma City: We have tried glandular extracts and they act favorably at times; but the improvement is only temporary. Regarding the racial incidence and the susceptibility of the fair races to psoriasis, the same can be said regarding the American Indian as has been mentioned concerning the negro. In my observations among the Indians, I have yet to find the first case of psoriasis or anything even simulating it. Even the half-breeds seem to be immune, or if they have enough of the original blood in them to show a color on the skin, they do not have psoriasis.

DR. H. E. MÉNAGE, New Orleans: I wish Dr. Schamberg would let us know whether he found any effect on the blood in the way of leukopenia following roentgenotherapy.

DR. KARL G. ZWICK, Cincinnati: I should like to know what Dr. Schamberg thinks of Lenhoff's auto-inoculation results, which point to a parasitic origin of psoriasis. In a number of patients with psoriasis, Lenhoff succeeded in producing auto-inoculations or autotransplantations. That the "takes" were not due to traumatism, Lenhoff showed by simple irritation experiments. Transplantations to other patients failed. This negative result indicates the importance of the terrain for the success of the inoculation.

DR. J. FRANK SCHAMBERG, Philadelphia: One cannot distinguish between the experimental production of lesions that are assumed to be auto-inoculations and those that are produced by designed traumatism. We have scarified certain areas in psoriatic subjects and have then rubbed in serum from psoriasis patches; and on the opposite side of the body, at the same time, we scarified and covered the area with an inpermeable substance; the two scarifications reacted in the same manner. We cannot distinguish factitious psoriatic lesions due to traumatism from what is believed to be auto-inoculation in the acute psoriatic subject. I do not believe it is possible in the quiescent stage of the disease to produce lesions by scarification or inoculation. We have made no special study of the blood in connection with the use of roentgenotherapy in psoriatic subjects, but I agree with Dr. Ménage that long continued roentgenotherapy in any disease is prone to produce leukopenia. I am in accord with Dr. Ayres in respect to the frequent outbreak of psoriasis after acute diseases, particularly after acute tonsillitis, and think that this association is worthy of further study. On the other hand, it is not uncommon to see an existing psoriasis disappear or markedly improve after some acute intercurrent disease. There is some constitutional shake-up, the fundamental nature of which we do not know, that seems to be responsible for this occurrence. I have attempted to emphasize certain conceptions in connection with this disease, and to formulate what we may expect to accomplish by treatment, without going into details. I believe that all the general methods we employ have an effect on the reproductive impulse of the epithelial cells which is so evident in psoriasis. We must attempt to render the process inactive, and then the remedies take hold and often act as if by magic. Among the procedures that are helpful are low protein diet, and foreign protein reactions. I have no doubt that new methods will be introduced as time goes on. We have been working on psoriasis for twelve years, but its essential nature still remains a great mystery. When I first began the work, I went abroad and had consultations with many of the leading specialists in Europe. It was illuminating to observe the different views of equally eminent men. Unna could see nothing but a parasitic origin, while Sabouraud was equally convinced that the disease was of metabolic origin. The fact is that no one today knows the cause of psoriasis.

Preparing Proposed Health Legislation.—In shaping health legislation, a thorough knowledge of the public health laws is essential. It enables us to know what is already on the statute books, to know the legal limitations to our proposals, and to draft laws to meet conditions adequately. This means that a relatively small group of people in any state are at the outset instrumental in preparing the proposed legislation.—R. G. Paterson: *Hosp. Soc. Serv.* **9**:18 (Jan.) 1924.

DOES THE PANCREATIC HORMONE (INSULIN) LOWER THE BLOOD PRESSURE?

IS THIS EFFECT DUE TO ITS ACTION ON THE SUPRARENAL GLANDS?

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In the course of our treatment of patients with diabetes mellitus at Lebanon Hospital in the past year, we made the following interesting observations: 1. Under insulin administration, a number of diabetic patients with hypertension showed a diminution in blood pressure. 2. Some with a normal or low blood pressure exhibited a still further lowering. 3. The factor of blood sugar reduction is independent from the factor of blood pressure reduction, since many lowered blood pressure readings were obtained though the blood remained hyperglycemic on account of the diet being adjusted to that effect.

Four cases are here cited. The factors influencing the state of blood pressure (as, for example, rest in bed, posture, time of day when reading was taken, excitement) were controlled as far as this is possible in a general ward. Most of the figures quoted below, including chemical findings, were obtained in duplicate. Insulin-Lilly, H-20, was used throughout.

REPORT OF CASES

CASE 1.—Mrs. J. L., aged 54, with mild diabetes, was admitted, April 28, 1923, with the blood pressure 196 systolic and 102 diastolic. Blood sugar in the preinsulin period in the postabsorptive state averaged, after four readings, 147 mg. per hundred cubic centimeters, highest 200, lowest 102, on the day preceding insulin injection. The patient was in bed ten days before insulin treatment was instituted, the blood pressure varying between 196 systolic and 100 diastolic, and 204 systolic and 102 diastolic. Insulin was injected, 10 units three times a day, for a period of four days, the blood pressure being recorded before administration, and one-half hour and two hours after administration. The average reduction in systolic pressure within one-half hour after injection was 18 mm. of mercury; the maximum fall, 22 mm. and the minimum, 12 mm. Two hours later, the average systolic pressure was 7 mm. below the original reading, the maximum being 12 and the minimum, 4 mm. Blood sugar was always above normal and approximated the average figure of the preinsulin period, 137 to 143 mg. per hundred cubic centimeters.

CASE 2.—Mrs. C. B., aged 59, with moderately severe diabetes, was admitted to the Lebanon Hospital, June 6, 1923, with a hyperglycemia of 235 mg. per hundred cubic centimeters, which remained throughout above 200 mg. (These readings were taken before breakfast.) The preinsulin blood pressure averaged 142 systolic and 78 diastolic, highest 152/82; and lowest, 136/76. After two weeks of observation, insulin was given twice and three times a day in the same amount as in Case 1. The period of administration was eight days. An average reduction of 11 mm., the highest being 16 and the lowest 6 mm., was noted within one-half hour after injection, and the blood pressure remained at approximately the same level for two hours. This patient was discharged from the hospital at the end of the insulin period with systolic blood pressure 114, and diastolic 64, although the hyperglycemia was practically the same as on admission (215 mg. per hundred cubic centimeters of blood), as the result of diet adjustment.

CASE 3.—Mrs. T. R., aged 55, with severe diabetes, on admission to the hospital, July 5, 1923, had a systolic blood pressure of 195 and diastolic, 93, as an average, the highest being 200/95, and the lowest, 185/90. The fasting blood sugar was 277 mg. per hundred cubic centimeters. During the preinsulin period of ten days these figures remained approximately stationary. The mode of insulin administration was the same as in the cases cited above. The average reduction in systolic pressure was 11 mm., the maximum being 12 and the minimum 4, one-half hour after insulin, this reduction in blood pressure persisting for two hours. Blood sugar varied between 204 and 303 mg. per hundred cubic centimeters at the time these readings were taken, the average being 247 mg. On discharge, at the end of the insulin period of eight days, the patient's blood pressure was 178 systolic and 86 diastolic; blood sugar was 238 mg. per hundred cubic millimeters.

CASE 4.—A. J., a man, aged 55, with severe diabetes, entered the hospital, July 31, 1923, with general muscular weakness more noticeable on moving the upper than the lower extremities; drowsiness, acetonuria, from 1 to 2 per cent. glycosuria, a fasting blood sugar of 235 mg., and carbon dioxid combining power of 60 c.c. per hundred cubic centimeters. On admission, the blood pressure was 122 systolic and 84 diastolic. A total of 435 units of insulin was given for three weeks, in 5 and 10 unit doses, according to indication. Throughout, the blood sugar remained at from 217 to 263 mg., with carbon dioxid combining power above 48 c.c., absence of glycosuria (apparently a high renal threshold), and a urine negative for or showing a trace of acetone. During the last three weeks before death, the patient gradually became somnolent, then stuporous, asthenia became generalized, intense nausea developed, and vomiting occurred repeatedly. Unfortunately, blood pressure readings were not taken daily, but at somewhat longer intervals. The patient died, showing no other symptoms, and necropsy was unobtainable. Successive systolic and diastolic blood pressure readings, during the last three weeks, taken at two and three day intervals, were 110/64, 108/74, 112/76, 130/70, 124/70, 114/70 and 94/68. On the day before death, the blood pressure was 90 systolic and 64 diastolic. This case is of interest on account of the clinical phenomena manifested during the course of observation in the hospital.

The capacity of insulin to reduce the blood pressure under certain conditions was also observed by Klemperer and Strisower,[1] who obtained similar, though not identical, experimental results. These investigators do not attempt to give an explanation for these phenomena, although they suggest the existence of a hitherto unknown factor that might participate in the regulation of blood pressure in general.

COMMENT

While the number of carefully observed cases here cited is small, still the remarkable constancy with which we found the blood pressure to behave during insulin therapy raises the question: Does not insulin, representing, as it does, the internal secretion of the pancreas (if there should be an etiologic relationship between it and the lower blood pressure observed), act in conformity with the hypothesis of an antagonistic action between the hormones of the pancreas and suprarenal glands? That the height of the blood pressure bears some relationship to the concentration in the circulating blood of the suprarenal hormone is now generally recognized. Therefore, the administration of insulin should have a tendency to lower the blood pressure, which should occur the more easily in conditions with hypofunction of the suprarenal glands, so that a syndrome analogous to Addison's may result.

This conception would explain the seemingly peculiar clinical course of a case cited by Campbell,[2] in 1923. In this case, the patient was admitted in a state of diabetic coma, with a blood pressure of 120 systolic and 68 diastolic. The patient received 860 units of insulin in fifty-two hours, with a systolic and diastolic

1. Klemperer, P., and Strisower, R.: Wien. klin. Wchnschr. **36**: 672 (Sept. 20) 1923; abstr. J. A. M. A. **81**: 2070 (Dec. 15) 1923.
2. Campbell, W. R.: Ketosis, Acidosis and Coma Treated by Insulin, J. Metabol. Res. **2**: 628 (Nov.-Dec.) 1922.

blood pressure decreasing thus: 80/60, 78/50, 40/20, 40/15, 38/20 and 31/20. Still, the patient quickly regained consciousness, remaining conscious till two hours prior to death, the carbon dioxid combining power rising to 25 c.c. without acetonuria, as compared to a carbon dioxid combining power of 12.8 c.c. and acetonuria on admission. The patient's asthenia was so marked as to show no evidence of volitional effort, yet she recognized people and responded to questions. Campbell was puzzled by the clinical course of the case, and could not definitely state the cause of death except to liken it to some cases of carbon monoxid poisoning. It seems to us that on account of the great quantity of insulin used to bring the patient out of coma, a state was produced in which the amount of epinephrin in the body was more than counterbalanced by insulin, this leading to suprarenal fatigue and later to a state of suprarenal exhaustion, which might have been the cause of death.

The foregoing picture resembled that exhibited in Case 4 cited by us. This patient also exhibited a progressive hypotension, together with the symptoms of intense asthenia, gastric irritability (nausea, vomiting) and somnolence, although the blood remained hyperglycemic, owing to diet adjustment, and the carbon dioxid combining power of the blood showed no deviation from normal.

We fully realize that the deductions drawn from our observations are merely tentative, and that more clinical and especially experimental work is needed to make them conclusive.

DIAGNOSTIC ERRORS LEADING TO UNCALLED FOR APPENDECTOMY *

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Ten years ago, many surgeons and the directors of surgical services in our large hospitals had become painfully aware that they were getting too many unfavorable results from their operations for chronic appendicitis. They set about to clean house. A more critical study of their cases was made before the operation; a larger incision was made at the operation, and the exploration of the abdominal cavity was more thorough. In several hospitals, decided improvement was accomplished. This progress, however, has been far from universal or even general.

In 1920, Hugh Cabot stated that, in large surgical clinics, hardly a day passes on which patients who have had their appendixes removed without relief do not present themselves. The following year, O'Neil [1] informed us that about 25 per cent. of the patients in the Massachusetts General Hospital who had ureteral calculi had had operations on their appendixes or the abdominal organs before a correct diagnosis was made. In 1922, Chalfant [2] called attention to what he called a notorious fact that the ultimate results of operations for chronic appendicitis are among the poorest in surgery. The internist has added his voice to that of the surgeon, the urologist and the gynecologist. Every practitioner of experience will bear witness to the fact that not many more than half of his patients who submit to appendectomy for chronic disorders are really relieved. Therefore, though the subject of "chronic appendicitis" has often been called a threadbare one, it must be attacked with ever new vigor until appendectomy can no longer be justly called the "opprobrium of surgery." New light will come from two sources: first, a study of the symptomatology; second, a study of the surgical failures. This paper deals with the latter, but a brief survey of certain general phases of the problem may help clarify thought.

THE CLINICAL POINT OF VIEW

The term chronic appendicitis implies a pathologic condition rather than a clinical entity. If progress is to be made, it is absolutely essential to draw a sharp line of demarcation between the pathologic and the clinical concept of chronic appendicitis. It cannot be emphasized too strongly that the justification for the operation lies not in the pathologic condition of the appendix as found by the surgeon or pathologist but by the clinical results obtained by the operation. If the patient is promptly and permanently relieved or cured, the operation was indicated, and was a success. If the patient is not markedly improved or cured, from a clinical point of view he was not suffering from chronic appendicitis, no matter what the pathologist may report regarding the condition of the appendix.

It is easy to see why this distinction must be made. From 96 to 97 per cent. of hospital patients yield evidence at necropsy of tuberculosis (Nagele, in 1900, and Reinhard,[3] in 1917). Did all these patients require treatment for tuberculosis? Certainly not. Pathologists tell us that late in life a normal appendix is hard to find. Were we to be guided by the gross or microscopic anatomy, appendectomy should be universal.

Aschoff finds evidence of preexisting appendicitis in from three fourths to four fifths of all persons in the sixth and seventh decades of life. Oberndorfer says that if we include obliteration of the lumen and thickening of the wall, then in adult years every appendix shows pathologic changes; i. e., no old person has a normal appendix. Quotations from eminent authorities could be cited in large numbers. Sonnenburg says that, after the age of 40, only a few people have a perfectly normal appendix. Cornil examined appendixes removed incidentally in the course of other operations, and found them almost invariably diseased. In our own country, Williams and Slater [4] examined the appendixes in 500 consecutive gynecologic operations. In none of these cases was there any clinical evidence pointing to appendicitis; nevertheless, 167, or one third, of the appendixes proved to be grossly pathologic. From the clinic of John B. Deaver, Pfiffer reported the pathologic changes in 5,000 appendectomies. Five hundred of the appendixes were removed as a routine in the course of other operations; nevertheless, the pathologist reported 76 per cent. of them diseased—the seat of chronic appendicitis. Evidently this has pathologic interest but no clinical importance.

What can be clearer than that, in a very large proportion of cases, the anatomic condition of the appendix has little or no bearing on the clinical history of the patient?

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. O'Neil, R. F.: A Plea for the Early Recognition of the Symptoms of Urologic Lesions, J. A. M. A. 77:417 (Aug. 6) 1921.

2. Chalfant, S. A.: Some Gynecologic Misdemeanors, J. A. M. A. 78:1675 (June 3) 1922.

3. Reinhard, in Nelson's System.

4. Williams, J. T., and Slater, R.: The Condition of the Appendix in Five Hundred Laparotomies on Patients Presenting no Symptoms of Appendicitis, Ann. Surg. 70:535 (Nov.) 1919.

TYPES OF CHRONIC APPENDICITIS

Is there a characteristic dyspeptic type of chronic appendicitis? For fifteen years, clinicians and surgeons have emphasized the importance of this question and have sought an answer to it. What a tremendous gain it would be if we could pick out of the protean symptomatology of digestive disorders a group of symptoms that would indicate, with even reasonable certainty, the presence of a disturbing, chronically affected appendix. Eventually, this task must be accomplished if chronic appendicitis is to be given a rational clinical standing, and to be stripped of vagueness and uncertainty.

A large proportion of cases of chronic duodenal ulcer can be recognized with reasonable certainty from the clinical history. Particular types of gallbladder disease can be correctly inferred from their symptomatology. At least one form of chronic appendicitis can be diagnosticated from its history and physical findings—the relapsing form. Every clinical study and every statistical presentation should place the relapsing form of chronic appendicitis in a class by itself.

This would prevent error in estimating results, and would avoid confusion. When Deaver and Ravdin [5] present 500 cases and give the end-results in 226 of them, showing that complete relief was obtained in 83 per cent., we may be sure that they are dealing, not with the ordinary form of chronic appendicitis, but with the relapsing type. In fact, they tell us that 418 of the 500 patients gave a history of previous attacks (nearly 84 per cent.); and that, in 145 cases, the operation was undertaken for urgent acute exacerbations—surely, not chronic appendicitis in the usual sense. Relapsing appendicitis implies a more or less definite history of one or more preceding attacks, and the occurrence under observation of the symptoms and signs of actual inflammation; i. e., pain, right iliac tenderness, nausea or vomiting, leukocytosis, and usually fever and muscle spasm. The indication for operation is not a preexisting chronic condition, but an acute or subacute inflammation actually observed and recognized.

If operations were limited to acute attacks, to the interval after known attacks, or to definite relapses, errors would be comparatively few, and the proportion of cures would be satisfyingly large.

This conclusion is gradually gaining wider acceptance. Melchior and Loser [6] tell us that, after interval operations following acute attacks, 94 per cent. of the patients are cured; when there is no preceding attack only 60 per cent. are cured. Lichty [7] says that, in cases in which there is definite evidence of preceding attacks, the results are almost invariably good. But, in other cases, it is probably safe to say that not more than 60 per cent. of the diagnoses are justified clinically. Lawrence [8] reports on a series of fifty carefully studied cases. Of twenty-four patients operated on in the absence of a history of acute attacks, not one was completely relieved. Gibson [9] warns us to exercise particular restraint when there is no clear or reliable history of well defined attacks, and Hadley [10] raises the question whether one is ever justified in making a diagnosis of chronic appendicitis without a history suggesting preceding attacks in childhood or later years.

Leaving aside, then, the cases of frankly relapsing appendicitis, what group of symptoms justifies a clinical diagnosis of chronic appendicitis? A clinical diagnosis of chronic appendicitis implies two factors: (1) that the appendix plays an important or dominating rôle in the symptoms of which the patient complains, and (2) that the removal of the appendix will relieve the patient of his symptoms. If we adhere conscientiously to this criterion, it must be admitted that the differential diagnosis of chronic appendicitis is one of the most difficult in the whole realm of medicine.

It is not very helpful, as one surgeon [11] has done, to tell us that "nausea, vomiting, eructations; hard right rectus muscle; tenderness at McBurney's point; meteorism at the cecum; rousing gas pressure pain; sex gland pain; weakening of the cremaster reflex; funiculitis; pain on coughing and on the introduction of the finger into the right inguinal canal and on deep right rectal and vaginal pressure—all these things mean chronic appendicitis and demand removal of the appendix." This group of symptoms never occurs in any one case. One might as well throw all the letters of the alphabet on the table and say that they spell appendicitis.

More serious studies have recently been made by other clinicians and surgeons.[12]

Stanton, recognizing the end-results of operations as the only reliable guide to the correctness of the diagnosis, says that his definitely cured patients (i. e., his correctly diagnosticated patients) had a distinct and constant group of symptoms; viz., epigastric or midabdominal pain or distress, and nausea with at least some of the attacks. Attacks of dyspepsia accompanied by epigastric pain, radiating to or about the umbilicus or to the lower abdomen, suggest appendicitis and occurred in 98 per cent. of his successful cases. Food intake is regularly associated with increase of distress or pain; but the discomfort may appear from a few minutes to an hour or more after meals. Pain in the right lower quadrant occurred in 86 per cent. of his cases, but it has significance only if associated with midabdominal pain and nausea. Nausea occurred in 95 per cent. of his cured patients. If the pain is severe, nausea and even vomiting are the rule. Nausea is far more common in chronic appendicitis than it is in gastric ulcer or gallstones, and is the most constant and distressing symptom.

Charles Gordon Heyd stresses particularly the extreme variability of the dyspepsia, the lack of regularity in the evolution of the symptoms. Articles of food may agree with the patient at times and upset him at others. Heyd thinks that the course of the symptoms in the large majority of cases is as follows: pylorospasm, pain, increased secretion, increased acidity, gaseous and sour eructations, and occasionally vomiting. In disagreement with most observers, Heyd states that, in the ordinary case, there is no history of an acute attack. The epigastric distress is a source of intermittent annoyance or sense of ache, usually with no direct relationship to food. The distress is apt to be aggravated by activity, and may be relieved by an enema or a cathartic. Occasionally, local appendical pain may be elicited, but symptoms embracing only pain in the right

5. Deaver, J. B., and Ravdin, I. S.: End-Results of Five Hundred Cases of Chronic Appendicitis, Ann. Surg. **6**: 31 (Jan.) 1923.
6. Melchior and Loser, quoted by Rost, Franz: The Pathological Physiology of Surgical Diseases, Philadelphia, P. Blakiston's Son & Co., 1923, p. 263.
7. Lichty, J. A.: Chronic Appendicitis, J. A. M. A. **79**: 887 (Sept. 9) 1922.
8. Lawrence, C. H.: The Cause of Recurrence of Symptoms After Removal of the Appendix, Boston M. & S. J. **189**: 671 (Nov. 8) 1923.
9. Gibson, C. L.: The Results of Operations for Chronic Appendicitis, Am. J. M. Sc. **159**: 654 (May) 1920.
10. Hadley, M. N.: The Chronic Appendix, Cincinnati J. Med. **38**: 396 (Oct.) 1923.
11. Eastman, J. R.: Chronic Appendicitis: Is It a Myth? Indianapolis M. J., June, 1923; Surg., Gynec. & Obst. **38**: 75 (Jan.) 1924.
12. Including, among others: Lichty (Footnote 7). Stanton, E. M.: Chronic Appendicitis, New York M. J. **110**: 406 (Sept. 6) 1919. Gibson (Footnote 9). Rolleston, Humphry: Brit. M. J. **1**: 317 (March 6) 1920. Heyd, C. G.: S. Clin. N. Am. **1**: 519 (April) 1921. D'Acierno, P. A.: The Symptom Pain in the Diagnosis of Appendicitis, New York M. J. **115**: 663 (June 7) 1922.

lower quadrant are usually not relieved by appendectomy. Lichty noted nausea in 57 per cent. of 400 patients operated on, and believes that persistent pain at McBurney's point is of the greatest significance. Hyperchlorhydria was present in 72 per cent. of 263 analyzed cases. He also thinks that the diagnosis must often be made by exclusion.

Rolleston doubts that a differential diagnosis can be made on the strength of the subjective manifestations alone.

Space forbids a wider discussion of the differential diagnosis here. Studies such as those just referred to are of the greatest importance, and gradually we shall be able to build up a clinical picture combined with physical signs that will give us a dependable basis for a correct clinical diagnosis. At present, this has not been accomplished, and, as a result, operative failures still average from 30 to 40 per cent.

THE OPERATIVE FAILURES

Several years ago I conceived the idea of studying the factors that led, or rather, misled, physicians to advise and surgeons to undertake what turned out to be uncalled for appendectomies. It seemed that such a survey, based on actual experiences, might produce instructive results. With that object in mind, I have collected from private practice reports of some 300 cases in which appendectomies had been performed without relief. I made a complete study of each case,

Unsuccessful Operations for Appendicitis: Causes for Failure

Causes of Failure	No. of Cases
Very inadequate study of the patient; very imperfect indication for any operation	66
Symptoms due to gastric or duodenal ulcers	20
Symptoms due to disease of the gallbladder	16
Misleading roentgen-ray reports	10
Genito-urinary cases	9
Symptoms due to colitis	12
Symptoms due to pulmonary tuberculosis	9
Neurasthenic origin of symptoms	8
Symptoms due to inguinal hernia	3
Pinworms	2
Acid gastritis	2
Ovarian disturbances	5
Various conditions, including gastric crises, cardiorenal disease, endocrine disturbances, pellagra, focal infections in the throat and accessory sinuses	8
Total	170

including a careful history, numerous physical examinations, gastric analyses, and a complete roentgen-ray study of the entire digestive tract.

Patients could not always furnish accurate histories. Every case in which the history was uncertain or inconclusive was rejected. This rigorous censorship left only 170 cases for statistical presentation, although fifty other cases had features of practical importance.

A careful analysis of the 170 cases led to the rather startling conclusion that fully two thirds of all the patients had never been carefully studied before the operation, and the indications for any operation in at least one third of the cases were very imperfect indeed. Not one third of the patients had had a competent and thorough examination in the modern sense. Not that large a proportion had had an analysis of the gastric juice, any adequate observation under proper dietetic conditions or a complete roentgen-ray examination. Many were subjected to operation "on suspicion" because their digestive disturbances had resisted medical treatment and because many of them presented right iliac sensitiveness, gaseous distention or other signs or symptoms that seemed to point to the possibility of chronic appendicitis.

There is rather a widespread belief among surgeons that the failure of medical treatment to cure dyspepsia in any given case is of itself an indication for operative intervention. This is certainly a fallacy, and leads to many failures.

The accompanying table shows graphically the causes which led to the performance of 170 unsuccessful appendectomies.

A glance at the table will show that in more than one third of the cases the indications for an operation were quite insufficient. I have made an especially painstaking study of this group, and find that the clinical picture usually included four factors: absence from the history of a preceding acute attack of appendicitis; constipation; more or less gaseous distention, and, most important of all, either pain in the right lower quadrant, or sensitiveness, on examination, over the cecum or at McBurney's point. In discussing cases with medical colleagues and with surgeons, I find that far too much importance is attached by most clinicians to right iliac distress, and the point is worthy of serious consideration.

PAIN AND TENDERNESS

That sensitiveness at or near McBurney's point occurs in almost every case of acute appendicitis is one of the most valuable discoveries of modern surgery. The gradual recognition of this fact has led to an almost universal association of ideas among medical men between right iliac distress and appendicitis. The transference of this association to chronic conditions, however, has been a fertile source of error. Possibly Hadley [10] overstates the case when he says that in chronic conditions without a history of previous attacks, when the chief complaint is right iliac distress, the appendix should be one of the last organs suspected instead of one of the first. Nevertheless, he states a conclusion which is gradually receiving recognition; viz., that appendectomies based chiefly on right iliac distress and tenderness at McBurney's point usually fail to relieve the patient. I have already quoted Heyd to the effect that symptoms embracing chiefly pain in the right lower quadrant are usually not relieved by operation. Stanton [12] states that nearly all his patients who were not cured by operation complained of right iliac rather than epigastric pain.

It is not my intention to minimize the importance of right iliac tenderness as an aid to diagnosis in cases of chronic appendicitis. In cases of chronic dyspepsia, when a careful examination, with modern methods, of the entire gastro-intestinal tract, as well as the urinary and pelvic organs, fails to reveal a satisfying cause, persistent or recurring tenderness at McBurney's point is an important sign, and suggests chronic appendicitis but is in no sense pathognomonic or even decisive. Many surgeons when confronted with a chronic case base their decision to operate on tenderness at McBurney's point, and this accounts for many operative failures, or, as Lichty more politely puts it, "not operative failures but diagnostic mistakes."

In this connection, I wish to call attention to observations made on patients who have had their appendixes removed. In the series of cases which form the basis of this paper, I have accurate records in 127 patients of the right iliac physical findings from one to five years, or, in a few cases, even longer, after the appendectomies had been performed. In seventy-eight cases, the incision had been made in the right iliac region; in forty-nine cases, the incision was in the median line. Of the 127 patients, fifty-five, or 43 per cent., still had

definite tenderness at McBurney's point quite as marked as we ordinarily see in unoperated patients. It is astonishing to learn that persisting right iliac tenderness was even more common in the patients with a median incision than in those with a right sided incision: twenty-four out of fifty, or nearly 50 per cent., in the median cases; thirty-one out of forty-eight, or 40 per cent., in the other group. A larger series of cases may possibly somewhat modify these proportions, but it is as important as it is interesting to learn that more than 40 per cent. of patients after unsuccessful appendectomy manifest tenderness in the right iliac region. It may be that the removal of the appendix creates a right iliac tenderness which did not formerly exist. Future observations are needed on this point.

Attention should be called to the great variability of this symptom. It is very common to find right iliac tenderness in a patient on certain days but to fail absolutely to find it in the same patient on other days. Those surgeons who largely base their decision to operate on the presence or absence of tenderness at McBurney's point might come to different conclusions on different days of the same week.

Certain factors influence the occurrence of right iliac tenderness. Some patients have pain whenever the cecum is distended, and the time after the preceding meal at which the examination is made might prove a determining factor. We shall see in the discussion of the roentgen-ray examination that the distention of the cecum with barium may produce distinct cecal tenderness, which may have been absolutely absent the day before. The roentgenologist who makes a positive diagnosis from the apparent tenderness of the filled appendix will often be led into error.

We should therefore bear in mind that right iliac tenderness, while a most useful guide, is also a most deceptive one. It should be used for guidance in chronic cases only after a critical study of the history and a complete gastro-intestinal survey. One examination is rarely sufficient for a correct estimate of its importance. It cannot be emphasized too strongly that a correct clinical diagnosis of chronic appendicitis usually requires observation and study of the patient over a protracted period. Hasty diagnosis will leave the percentage of correct guesses at about 60 per cent.

MISLEADING ROENTGEN-RAY REPORTS

My list of cases includes ten striking instances (nearly 6 per cent. of the whole number) of misinformation furnished by the roentgenologists. There were undoubtedly many others not recorded.

CASE 1.—A man, whose condition was subsequently diagnosed as gastric crises, had an appendectomy performed. This was done on the advice of a roentgenologist, who made a positive diagnosis because of inability to visualize the appendix.

CASE 2.—A woman, aged 30, with pulmonary tuberculosis, was sent to the roentgen-ray department for examination. The diagnosis was: adherent appendix. Appendectomy was done. There was no change in the symptoms.

CASE 3.—A man, affected with migraine, was given a roentgen-ray examination. The report was: "Appendix shadow spotted in three places." An appendectomy was performed. There was absolutely no relief.

CASE 4.—A girl, aged 28, afterward found to have a gastric ulcer, was given a diagnosis of chronic appendicitis. At operation, a small, shriveled appendix was found. There was no relief. The patient had subsequent hemorrhages.

CASE 5.—A man, aged 30, with colitis, was given a roentgen-ray examination. Diagnosis was made of chronic appendicitis, based on the impossibility of visualizing the appendix. There was no relief.

CASE 6.—A man, aged 38, had foul stools and morning nausea. Roentgen-ray diagnosis was positive of chronic appendicitis. A normal appendix was removed. Subsequently, there was no relief.

CASE 7.—In this case the appendix was said to be visualized eight years after a preceding appendectomy. There had been no relief from the former operation. A new operation was advised.

CASE 8.—A woman was given a diagnosis of appendicitis, four years after the removal of the appendix. A clinician advised appendectomy without making a physical examination.

CASE 9.—A woman, aged 51, was examined by roentgen-ray procedure four years after appendectomy. The roentgenologist described the appendix as retrocecal and inflamed.

CASE 10.—A woman, examined by roentgen-ray, was given a positive diagnosis of appendicitis. At operation, a fibroid was found. The appendix was normal.

All these patients were examined by the leading roentgenologists of this and neighboring communities. In no instance was the work done by inexperienced men. Unfortunately, the widest divergence of views exists among roentgen-ray specialists regarding the data necessary for a correct diagnosis, and the roentgent-ray literature bristles with the grossest inconsistencies. Only a very few years ago, an article [13] was published in THE JOURNAL defending the thesis that the filling of the appendix lumen in patients more than 30 years of age meant disease.

Most American roentgenologists today declare that from 50 to 80 per cent. of all appendixes, whether normal or abnormal, can be visualized.

I cannot enter here on the general subject of the roentgen-ray diagnosis of appendicitis. There is no doubt, however, that many roentgenologists make the diagnosis of chronic appendicitis with the greatest recklessness. It is very common for surgeons to refer their patients to such roentgenologists with the rather confident prediction that a positive diagnosis will be made. In such communities, unnecessary appendectomies will be performed in large number.

Carman [14] tersely says that, since few normal appendixes have been found by surgeons or pathologists, the diagnosis of appendicitis on any grounds whatever is not at all hazardous. Every clinician should read his chapter on the roentgen-ray diagnosis of chronic appendicitis, because his conclusions have been so largely controlled by operations. He calls attention particularly to the deceptive inferences that may be drawn from fecaliths, fixation, malpositions, kinking, etc. All the usually accepted signs lose much of their force if not accompanied by pressure pain-points over the visualized appendix or cecum. Levyn [15] states that an appendix retaining barium but not tender to pressure probably does not require removal. White [16] and many other authorities consider constant tenderness clearly localized over the appendix the best sign of disease. In this connection I wish again to call attention to a fact noted above; viz., that the distention of the cecum with the barium mixture is often a cause of tenderness, even in the absence of disease.

The following experience has been repeated over and over again: On the first day of observation, the right iliac region is found to be devoid of all sensitiveness;

13. Skinner, E. H.: The Roentgenology of Appendical Obliteration, J. A. M. A. **75**: 1614 (Dec. 11) 1920.
14. Carman, R. D.: The Roentgen Diagnosis of Diseases of the Alimentary Canal, Ed. 2, Philadelphia, W. B. Saunders Company, 1920, p. 610.
15. Levyn, L.: New York M. J. **117**: 688 (June 6) 1923.
16. White, F. W.: Boston M. & S. J. **188**: 587 (April 19) 1923.

the patient takes his barium-milk for fluoroscopic examination; on the following day, when the barium is found entirely within the colon, the right iliac region is found to be tender. Many of the patients are normal.

When the roentgenologist, therefore, reports tenderness in the appendix or over the cecum, one must accept any conclusion from this observation with the greatest reserve. Repeated examinations are indicated, if error is to be avoided.

Lastly, it must never be lost sight of that the roentgenologist, as his very greatest contribution to the diagnosis, can merely make certain anatomic observations and describe them. It remains for the clinician to determine the bearing such findings may have on the clinical history of the patient. Whatever the roentgenologist has to offer is merely one link in a chain. The responsibility resting on the clinician for a clinical diagnosis remains.

GENITO-URINARY CASES

My list of nine cases of overlooked genito-urinary conditions includes three overlooked right kidney stones, two cases of prostatitis with reflex symptoms, two of pyelitis, and two of renal prolapse.

In one case, the surgeon operated for kidney stone, and, finding none, removed a normal appendix. Three days later, a stone passed spontaneously. A second patient had his appendix removed on suspicion. Ten days later, he had a typical attack of renal colic: a roentgen-ray examination showed a large, hitherto overlooked, kidney stone which was successfully removed. All the foregoing cases were illustrations of diagnostic carelessness; the unnecessary operations could have been avoided by a careful study of the patient.

Most urologists are familiar with the fact that from 25 to 40 per cent. of patients with certain forms of chronic renal and ureteral disorders have their appendixes removed before a correct diagnosis is made, but this fact should become more generally known. Herrick [17] says that cutaneous hypersensitiveness from pyelitis, ureteritis and various stages of hydronephrosis has resulted in from 35 to 40 per cent. of these patients having their appendixes removed without relief. O'Neil [1] states that of all the patients with ureteral calculus operated on in the Massachusetts General Hospital, 25 per cent. had been operated on previously without relief for a supposed appendicitis or other intra-abdominal disorder.

Sanes [18] reports three cases of ureteral obstruction, in all of which appendectomies had been performed without relief.

It must be admitted that, in certain cases of appendicitis, gross or microscopic hematuria is present, and the differential diagnosis is at times difficult. Cases are recorded, indeed, in which severe types of appendicitis have been overlooked because of the predominating urinary signs and symptoms. Gottlieb [19] has collected reports of thirty-six cases of hematuria complicating appendicitis.

CASES OF PULMONARY TUBERCULOSIS

Four patients were men, from 22 to 42 years of age; five were women, from 25 to 36 years of age. Only one had had an acute attack simulating acute appendicitis. In only one patient did a subsequent analysis of the clinical history seem to justify any operation, a woman with tuberculous peritonitis and salpingitis. The others had the usual group of digestive disorders, gaseous distention, constipation, variable distress over the cecum, and resistance to the treatment directed to the dyspeptic disturbances. All of them came under my observation because of symptoms persisting or recurring after the operation, and in all it was possible to recognize the existence of active, although low grade, tuberculous processes in the lungs.

17. Herrick, F. C.: Ohio State M. J. **19**: 847 (Dec.) 1923.
18. Sanes, K. I.: Ureteral Obstruction, J. A. M. A. **78**: 475 (Feb. 16) 1922.
19. Gottlieb: Ztschr. f. Urol., Feb. 29, 1924.

COMMENT

It is impossible to discuss in detail all the groups mentioned above. Gastric and duodenal ulcer and cholecystitis will often be mistaken for chronic appendicitis after the last book on differential diagnosis will have been written. It is doubtful whether a larger incision will obviate all the difficulties of diagnosis. Surgeons are not at all agreed as to the advisability of one large incision, which often leads to hernia or a weakened abdominal wall. Many prefer to make two separate incisions.

It must not be thought that an exploratory laparotomy is always a harmless procedure. Of my 300 patients, thirty-five complained of serious disorders traceable to the operation itself. This seems a large proportion, but it is a very real one. Cabot justly says that to the neurasthenic an abdominal operation may be a real calamity, and so it often turns out to be. The commonest sequels were hernia, ileac stasis, omental and other adhesions, and neurasthenia.

Attention should be called to a small but important group of cases in which complete or incomplete inguinal hernia gives rise to symptoms simulating acute or chronic appendicitis. Intense right iliac pain, with constipation and marked prostration, may be common to the two disorders, but, in cases of hernia, fever and leukocytosis are both absent. Only a careful examination of the inguinal rings will prevent an error of diagnosis, and I know of at least three patients who were saved from threatened appendectomy by wearing a truss.

It is not a credit to the profession that appendectomies are still now and then performed for tumors of the spinal cord, pinworms, the gastric crises of tabes, endocrine disturbances, cancer of the sigmoid, achylia gastrica, and almost every other conceivable digestive disorder.

CONCLUSIONS

1. Operations for chronic appendicitis do not yet yield a satisfactory proportion of cures, owing to errors in diagnosis.
2. The term chronic appendicitis expresses a pathologic rather than a clinical condition.
3. The relapsing form of appendicitis necessitates prompt surgical intervention, and yields a very large proportion of permanent cures.
4. Aside from the relapsing type, a particular group of symptoms suggests chronic appendicitis, but not with reasonable certainty.
5. Right iliac pain is a most deceptive sign. In from 40 to 50 per cent. of the unsuccessful operations, it remains for months or years after the operation.
6. Two thirds of the failures are in cases that have not been adequately studied before operation.
7. Roentgen-ray examinations are usually not to be depended on for a clinical diagnosis, and are often misleading.
8. Urinary disorders are far too often mistaken for appendicitis.
9. In general, too many constitutional disorders are overlooked, and appendectomy often has serious after-results.

ABSTRACT OF DISCUSSION

DR. DAVID RIESMAN, Philadelphia: Medicine progresses not only by new discoveries but also by a study of its mistakes and an endeavor to rectify them. Dr. Bettmann has pointed out one direction in which paths of error lie. I thought it might round out the subject if I were to take up for a few moments the acute conditions that lead to unnecessary appendectomies—not only unnecessary but often dangerous to the life of the patient. Pneumonia is quite frequently diagnosed as appendicitis, and operations based on such errors have been done in some of our best clinics. There is but one way to guard against mistakes, and that is to make a thorough examination of the chest in every case of acute abdominal disease. Acute cholecystitis and gallstones may be mistaken for appendicitis. Fortunately, such an error rarely has serious consequences, if the surgeon makes it a practice, when the appendix does not adequately account for the symptoms, to examine the gallbladder region. Dr. Bettmann has referred to disease of the urinary tract—calculus, acute unilateral hematogenous nephritis and pyelitis may be mistaken for appendicitis. Here, too, there is a good rule that prevents mistakes: to make a thorough microscopic examination of the urine for blood and bacteria in every case that is not classically appendicitis. Tenderness and fulness in the right loin are also helpful. Salpingitis, oophoritis and inguinal hernia may simulate appendicitis. Sometimes acute pain in the right lower abdomen accompanies or follows an attack of tonsillitis, and creates a suspicion that appendicitis exists. I would suggest that in every case of sore throat associated with pain in the appendix region the patient be treated with salicylates unless operation is clearly demanded. Another interesting condition is the erythema group of Osler. I remember a patient who had mitral stenosis on a rheumatic basis. One day he was seized with a sharp pain in the appendix region. A diagnosis of appendicitis was made. When I saw him, I detected a few purpuric spots and suggested that the case might be one of Osler's syndrome. The next day the man was covered with purpura. The abdominal symptoms promptly disappeared. Sometimes Pott's disease produces symptoms suggestive of appendicitis. Chronic conditions constitute a more frequent cause of useless appendectomies than acute conditions, although the operation is fortunately attended with less danger. Many persons suffer from constipation and flatulence, abdominal pain and asthenia, in whom, because of a little tenderness in the right lower quadrant, the appendix is removed. The patient is better for a time, but the symptoms nearly always recur for the reason that the cause of the ailment was not the appendix but a visceroptosis with stasis and neurasthenia. A movable, pouchy cecum is often found in such cases, and may account for the local tenderness and fulness. Pain and tenderness alone are not sufficient warrant, in chronic cases, for the diagnosis of appendicitis. The roentgen ray is of but little help except so far as it shows stasis and pronounced ptosis. It is only when there has been a definite history of acute attacks, or when abdominal or rectal examination reveals a mass, that much can be hoped for from operation. In persons who do not have ptosis and are not pronouncedly neurotic, the constant or intermitten presence of tenderness in the right lower quadrant, especially when gastric symptoms are marked, usually justifies a diagnosis of appendicitis, and operation is productive of brilliant results. In the neurotic group, a flattening process, together with a suitable abdominal binder, does more good than operation.

DR. ANTHONY BASSLER, New York: In addition to the symptoms of chronic appendicitis mentioned by Dr. Bettmann, there are two types of cases which should be recorded. A patient, still young, complains about indigestion of several months' duration which has never existed before and usually is ascribed to an indiscretion in eating. There have been no nausea and no localizing symptoms on the lower right side. After careful study, the appendix is found to be involved. It was the cause of that indigestion. Cessation of symptoms followed its removal. A type of case much more common than this is that of the person, young or middle aged, who complains of distress of a "crampy" nature in the upper abdomen. It is intermittent in character. Whether that is due to a pyloric spasm reflex from the appendix or to something else I cannot say, but I do know that that is a symptom of chronic appendicitis which warrants removal of the appendix. Usually, of course, it is not the only symptom; it would be wise in these cases to examine the patient carefully.

DR. HENRY WALD BETTMANN, Cincinnati: As to the long incision: Surgeons themselves are in some doubt as to its advisability. Instead of making one long incision, some surgeons prefer a small incision for the appendix first, and a higher incision for the gallbladder and pylorus, if necessary. The differentiation between appendicitis and kidney stone is not always easy. In many cases of acute or chronic appendicitis there is hematuria, and many cases due to stone are falsely diagnosticated as appendicitis. Regarding the type of indigestion referred to by Dr. Bassler, I think a "crampy" pain is often purely functional in character, and abdominal cramps without fever and without leukocytosis are sometimes due to enterospasm without appendicitis. I think that, possibly because of the domination of surgical thinking, we are a little unwilling to consider conditions within the abdomen purely functional. The number of functional disturbances is probably larger than the literature of the last decade would lead us to believe.

ALLERGIC REACTIONS OF THE UPPER RESPIRATORY TRACT *

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It has become a common observation that a large percentage of people can be injured by contact with substances that are absolutely innocuous to others. Minute doses of an essentially inert substance have been known to produce violent reactions in a susceptible person. This peculiar reactivity has been referred to as idiosyncrasy, hypersensitiveness, anaphylaxis or allergy. The primary reactions of an allergic individual after contact with an exciting agent are manifested by local symptoms. When the contact is a very intimate one, general reactions result, and death may follow the entrance of a relatively small amount of the allergic substance. The studies of Walker, Goodale, Cooke, Duke, Kessler, Scheppegrell and others have demonstrated the allergic nature of hay-fever, as well as of many cases of asthma, urticaria and eczema.

The present conception of the nature of allergic reactions is a development from the observations on serum anaphylaxis in lower animals. Guinea-pigs, when injected with a foreign protein, such as horse serum or egg alubumin, if reinjected after an interval of time, will manifest symptoms of itching, sneezing and bronchospasms associated with pronounced asthmatic symptoms, convulsions, paralysis and death. By application of these observations to human beings, certain syndromes of symptoms manifested by patients have been considered of an anaphylactoid nature. The fundamental principles of anaphylaxis are not clearly understood, despite the fact that a great deal of valuable experimental work has been done to explain the mechanism involved. Some of the experiments have demonstrated marked changes in the blood and lymph; others have indicated that anaphylaxis is essentially cellular, while other workers maintain that there is

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essential participation of both the fluid and cellular elements in the toxic reaction.

A great deal of work has been done in the study of the chemical and enzyme reactions of anaphylaxis, but up to the present time there is no known mechanism that explains the severe reaction. Cooke and Coca, on being unable to demonstrate antibodies in the blood of patients sensitive to the less highly organized substances (such as pollens), have attempted to separate the latter reactions from those anaphylactic reactions due to the highly organized albumins and serums that produce antibodies. This distinction is apparently erroneous, as recently the experiments of Parker, Longcope and Kessler have shown the anaphylactoid nature of allergic reactions. The presumption, therefore, follows that patients who have hay-fever or other allergic manifestations, have become sensitized by the previous entrance of the exciting substances into the body. Nonsensitive individuals have undoubtedly also been exposed to various forms of these agents without the development of allergy. The factors responsible for this irregular reactivity of people to the entrance of foreign substances are little understood. There is marked variation in the response to various proteins by various species of animals. For instance, guinea-pigs react quite uniformly when injected with a foreign protein. Rabbits and dogs, on the other hand, will not react uniformly when sensitized. It is fortunate that so few people are sensitized, because of the common practice of injecting foreign proteins in the treatment of diseases. Cooke and others have shown that there is a hereditary factor in the production of allergic diseases. This observation is of little practical value in the thorough understanding of the mechanism of allergy. Practically all patients with hay-fever have pathologic conditions in the nose and sinuses, as shown clinically and by roentgen-ray examinations. While these pathologic changes in the nasal accessory sinuses may be secondary to the irritations produced by the exciting substances, they may also be primary. Inflammatory conditions alter the permeability of the mucous membrane of the intestinal tract, and they cannot be eliminated as a probable predisposing factor when found in the respiratory apparatus.

Allergic reactions are classified into three types, according to the mode of entrance of the exciting factor. The first type constitutes the inhalants, such as pollens, cosmetic powders, household dust, animal emanations, and gases of various nature. The second type of allergic reaction results from the ingestion of foodstuffs, as cereals, eggs and milk. The third group is due to bacteria or their by-products. Duke has recently reported a fourth type, in which the patients have been sensitive to physical agents, such as light, heat and cold.

In the discussion of allergy, it is immaterial if the case is one of hay-fever, vasomotor rhinitis, asthma, urticaria or eczema. The fundamental biologic abnormality of the patient is probably similar in all these local manifestations. If one is sensitive to pollens, symptoms will occur at the time the particular pollens are prevalent, and, as pollens are seasonal, hay-fever rhinitis is seasonal. However, the allergic state of the patient is not seasonal but perennial.

The exciting causes of seasonal hay-fever are the pollens existing in the period of time the patient complains of symptoms. In a series of 424 cases, 71.2 per cent. were sensitive to weed pollens, with symptoms in the latter part of August and September; 21.1 per cent. were sensitive to both grass and weed pollens, with symptoms from the middle of May to the first of October; 6.7 per cent. reacted to grass pollens, having hay-fever only in May and June, and 1 per cent. were sensitive to tree pollens, which produce symptoms in April and early May. Patients living under the same circumstances and surroundings will become sensitive to one, or all, of the pollens in a most independent manner. Some patients having symptoms throughout the summer months give reactions to a large number of pollens. One patient gave reactions to thirty varieties of pollen. Ragweed pollens were the predominating exciting agent in 95.3 per cent of the late summer cases, while 4.7 per cent. showed no reaction to the ragweed pollens, but reacted to some other form of air-borne pollen; 67.5 per cent. of the late summer cases gave reactions to ragweeds and other pollens; 17 per cent. gave reactions only to tall and short ragweeds; 6.1 per cent. showed sensitization only to giant ragweed pollens, and 4.7 per cent. showed marked reaction only to short ragweed pollens. The patients sensitive to grass pollen manifest symptoms usually in the latter part of May and June. Ninety-seven per cent. of these patients have shown multiple sensitizations. The most common grasses have been June grass, timothy, orchard grass, red top and plantain.

There are a great many patients who complain of hay-fever-like symptoms throughout the year, without seasonal periodicity. These cases are usually referred to as vasomotor rhinitis, rhinorrhea or perennial hay-fever. One hundred and fifteen of these patients have been tested for sensitization, from fifty to 150 food, pollen, animal epidermal, or bacterial extracts being used. About 10 per cent. have shown reactions that have proved to be important factors in the causation of their condition. The most common substance responsible in these cases has been orris root. This powder is an important component of rouges, face and hair cosmetics, as well as of various household powders. These cases have been studied in collaboration with Dr. Hubert, who has published a report of his observations on the endocrines of vasomotor rhinitis patients. As a result of these cooperative studies, vasomotor cases have been divided into the allergic and nonallergic types. Practically all the nonallergic types have shown some endocrine imbalance. The symptoms of the two types of cases are similar, and it is practically impossible to differentiate them clinically. The question of the relationship of internal secretions to allergy is therefore pertinent. It would seem that any undue taxation of the autonomic nervous mechanism through fatigue, toxemia, faulty metabolism, hypo-endocrine or hyper-endocrine function will result in sympathetic reactions, of which vasomotor rhinitis and allergy are related expressions.

A brief discussion of asthma naturally falls within the province of a paper treating with the allergic reactions of the upper respiratory tract. There are two types of asthma, the allergic and the bacterial infective type. At times, the two types are combined.

About 40 per cent. of all asthmatic patients show allergic reactions. The percentage is greatest in children and younger adults. The exciting substances are of a great variety. The more common factors are the inhalants, pollens, animal emanations, household dust, cosmetic powders, and foods. The most common foods are cereals, milk and eggs. The identification of the exciting cause of allergic asthma is at times quite difficult. A careful history of exposure to probable exciting factors is essential. Various exciting factors are

reported from time to time which are of more or less practical interest.

Bacterial infective asthma occurs most frequently in adults and patients past middle life. These cases appear to be primarily of bacterial origin. In the diagnosis of the bacterial infective types of asthma, a great deal of information can be obtained by means of freshly prepared autogenous bacterial vaccine and the intracutaneous skin test. The majority of these cases will give reactions to the proper bacterial vaccines. It is not uncommon to see improvement in these cases if infected tonsils or sinuses have been properly treated surgically. If the infective process in the bronchial tissues is extensive, relief from asthma is practically impossible, even if all procedures known to be of value are diligently followed. Some method for the direct treatment of the infection of the bronchial tissues is apparently needed, as these structures continue to harbor the bacteria after all other foci have been relieved.

To elicit allergic reactions, the scratch test has been employed, dried extracts being used with tenth normal sodium hydroxid as a solvent. This method has been very satisfactory, and no severe reactions have resulted. Severe reactions as well as pseudoreactions may accompany the intracutaneous method. If no reactions are found in apparent allergic cases by the scratch test, the intracutaneous method is used, as it is undoubtedly more critical. The identification of the exciting pollen in hay-fever is not as difficult as the finding of the exciting factor in asthma or other forms of allergy. The skin test for the diagnosis of allergy is one of the most satisfactory procedures available for ascertaining the cause of diseases.

Reactions to bacterial products are being utilized in the diagnosis of susceptibility to infectious diseases; namely, the Schick test in diphtheria, the Dick test in scarlet fever, and the tuberculin test in tuberculosis. Zinsser has demonstrated sensitization to specially prepared bacterial extracts in animals infected by the same bacteria from which the extracts were made. A new aspect of infection and immunity to bacteria is being developed, based on the reaction of living tissues to bacteria and their by-products. Our studies with freshly prepared autogenous bacterial vaccines in patients with the bacterial infective type of asthma have been of great interest. The test consists of the injection of a small quantity of the vaccine intracutaneously. In the positive cases, there is an itching, redness and edema at the site of injection, followed in from twenty-four to forty-eight hours by a painful, congested area, with induration of the skin varying from 1.5 to 8 cm. in diameter. Control tests with inactive, or nonpathogenic, bacterial vaccines were made to exclude pseudoreactions. From these studies we have been able to obtain evidences of bacterial reactivity not before elicited with the dried bacteria. The fresh autogenous vaccines have likewise been used in the investigation of suspected bacterial foci not associated with allergy. Cultures from the suspected areas are taken, and a vaccine is prepared which is used in the intracutaneous test on the patient. Encouraging results have been obtained with this method in the demonstration of the relationship of a focus of infection to toxemia. These bacterial reactions have been used in the study of the toxic nature of the bacterial flora of tonsils and intestines, or intestinal bacterial flora. Some method that would demonstrate the relation of tonsils to a toxemia would be welcome, because it is often impossible to state, clinically and bacteriologically, whether these organs are the foci of toxemia.

Many methods for the injection treatment of allergy have been recommended. In treating hay-fever, some use single pollen extracts; others use polyvalent ones. Ragweed pollen extracts were used in the late summer types, and timothy pollen in the spring types of the disease. These single extracts were used for two seasons with satisfactory results. Failure of response in some cases led to the use of a mixture of pollens, which consisted of all the pollens combined in the proportion to which the patient gave reactions, in each case an individual polyvalent extract being used. In the fall variety, particular attention was given to both forms of ragweed, the other reacting pollens being considered as minor factors. An autogenous polyvalent extract was used for the spring type, or grass cases. The general observations are that the patients receive better results when a polyvalent extract is used. In the vasomotor rhinitis cases, desensitization injections were given if allergic reactions were demonstrated. The nonallergic cases responded very satisfactorily to the proper endocrine therapy. Several of the allergic cases gave better results when the injection and endocrine therapy were combined. In the asthmatic cases, complete cures can be effected in the allergic types if exposure to the exciting agent can be avoided. When this is not practicable, relief may be obtained by immunizing injections. If the exciting factor is pollens or animal emanations, very encouraging results may be offered. However, if the patient is sensitive to the essential foods to which he is necessarily exposed, the results are not so satisfactory. In the infective types of asthma, considerable relief results from the use of an autogenous vaccine to which the patient gives reactions.

In the desensitization of all allergic cases, the injections are given in the deltoid region, one arm being used throughout the course of treatment. There is established a local tolerance to the extract after two or three injections are given into the same area. It is possible to increase the amount of extract more rapidly and with less danger of severe reactions if this rule is followed. This procedure has been strictly adhered to for several years in the administration of several thousand injections, without the occurrence of a severe reaction. The local tolerance may be due to a retarding of absorption of the extract, or, as Coca maintains, to an exhaustion of the reactivity of the tissues, or probably to local desensitization of the tissues, as explained by MacKenzie. Whatever the explanation, the dangers of severe reactions will be greatly reduced if the injections are all given in about the same region. The greatest danger of reactions occurs from the accidental introduction of the extracts into a blood vessel, or by giving the large doses in a highly sensitive area.

The treatment of allergy is based at present on the desensitization of the patient by means of hyperdermic injection of gradually increasing amounts of the offending substance. This form of treatment has undoubtedly marked an advance in the management of these cases, resulting in a modification of the symptoms of the diseases. But wholehearted enthusiasm and acceptance of this method of treatment to the exclusion of all others is to be avoided. With immunization injections, many patients can live in their usual environments with considerably more comfort than without. On the other hand, complete relief is uncommon. Further chemical immunilogic and biologic investigations into the exact

basic nature of the mechanism of hypersensitive reactions are essential before these troublesome manifestations can be entirely relieved.

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ABSTRACT OF DISCUSSION

DR. KARL K. KOESSLER, Chicago: Physiologists appreciate that, when twenty years ago Richet discovered the phenomena which we now call anaphylaxis, we had very little idea that a gathering such as this would be discussing a paper on the practical side of this subject. It speaks for the unity of medicine that any discovery which is made today in a subject like physiology is a few years later of vast importance to the specialists. It is not for me to suggest that one look in one's special field for other diseases outside of hay-fever and asthma which have some relation to anaphylaxis and allergy. It may be of importance to have reviewed some of the tissue changes that are chiefly involved in the allergic reaction. The reaction of tissues to the allergic poisoning is not the same as to infection. It is, first, the smooth muscle fiber system which is involved. Wherever there are smooth muscle fibers, there is possibility of reaction to the allergic poison. Second in importance we may place the endothelial mucous membrane and capillary system. Since these structures are so plentifully present in the organ systems with which one has to deal, might it not be possible that in certain diseases not well understood the allergic reactibility of the tissues plays a rôle? Take, for instance, sinusitis. Frequently, of course, this is a true infection. But often there are manifested all the symptoms of a sinusitis, yet when the cavities are cleansed, the fluid is often found clear and it is assumed that there is nothing wrong with the sinuses. Swelling and clear exudation might well be present as symptoms of allergy in the absence of any infection. The frequency of allergic diseases is about 8 to 10 per cent. of all human beings. This means that that percentage of all human beings react to some allergic substance; the people who have a diseased condition due to allergy are thus extremely numerous, practically as numerous as people suffering from tuberculosis.

DR. GEORGE PINESS, Los Angeles: I wish to discuss particularly the intracutaneous test with bacterial autogenous vaccine brought out by Dr. Eggston. This was done first by Rackemann of Boston several years ago and published in the *American Journal of the Medical Sciences*. He was able to obtain reactions to specific bacterial vaccines. I, too, was able to obtain reactions with the vaccine, but found that in many cases they had no definite relationship to the disease itself. In plating out the sputums in individuals having bronchial asthma or asthmatic bronchitis, particularly the latter, we found that *Streptococcus viridans* and *S. hemolyticus* were found in the majority of sputums. Autogenous vaccine, in the great majority of cases of this type, gave no results. I feel that vaccines, as prepared by the average laboratory, have no value whatever, since they make their vaccines from only predominating organisms instead of using all contained in the sputum. The intracutaneous test and scratch test have been discussed many times pro and con with proof on both sides; however, the dangers attending the intracutaneous test, in comparison with the cutaneous, is so much greater and the results of the latter, as compared with the former, shows so little difference, that I believe it is much safer for the average individual to use the cutaneous method. Lamson recently reported thirty-seven deaths occurring from the administration of horse serum in patients sensitive to it, and indicated three cases in which death occurred from intracutaneous tests. Allergic reactions occur in a greater percentage of cases than was reported by Dr. Eggston. When patients are tested and retested, and not just one single series of tests is carried on, one will obtain more reactions, because even though a patient may be sensitive and not have a reaction, it is usually due to the fact that the patient is either antianaphylactic or is tested during or just prior to the onset of an attack; therefore, it becomes necessary to test patients in all stages. I test and retest until I find positive reactions, unless the history is one that does not indicate allergy.

DR. ANDREW A. EGGSTON, New York: I am familiar with the work of Rackemann in bacterial vaccines, but many references were omitted for the sake of brevity. However, only freshly prepared autogenous vaccines should be used for these tests. Many stock vaccine preparations are inert for this work. Many asthmatic patients do not give sensitization reactions, and I do not believe that all cases are allergic in character. Many cases have been carefully tested and retested without sensitization reactions, and in a great number of these relief has been given by various other therapeutic as well as surgical measures.

PRIMARY GIANT CELL TUMORS OF THE VERTEBRAE

ANALYSIS OF A GROUP OF CASES, WITH REPORT OF CASE IN WHICH PATIENT IS WELL TWO YEARS AND NINE MONTHS AFTER OPERATION

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Tumors developing from the vertebral column are more common than those developing from the meninges or cord. The metastatic outnumber the primary growths, as is indicated by the figures published in 1898 relating to 107 tumors of the vertebrae: carcinoma, fifty-four cases; sarcoma, thirty-four; osteoma, ten; myeloma, six; chondroma (chondrosarcoma), two, and myxoma, one.

It is difficult to determine the frequency with which giant cell tumors occur in the vertebrae. It has been suggested that they may be mistaken for tuberculosis. The few case reports that have been published would seem to indicate that such tumors are uncommon.

Bloodgood, in his latest communication dealing with giant cell tumors, reported seventy-seven cases. Since this report appeared, almost a year ago now, Codman has sent him the registered cases, so that these, with the new cases which he has, total 179. Five of these tumors occurred in the vertebrae.

REPORT OF AUTHOR'S CASE

A girl, aged 7 years, admitted to the Presbyterian Hospital, Oct. 21, 1921, had been healthy and advanced to the third grade in school. About October 1, night cries had been noted The child would awaken out of a sound sleep and cry out several times each night. She appeared well, however, during the day, went to school and played normally. A few days later, she complained of "aching pains in the stomach" unassociated with nausea or vomiting. These recurred frequently.

October 7, a neighbor called the mother's attention to the fact that the child had a peculiar wabbling gait. She walked as if her legs were stiff. The child was kept home from school. She lay on the lounge, playing, apparently comfortable and not complaining. During the following day, the symptoms increased rapidly, and October 8, she had to be assisted in walking and in attempting to stand. She complained of severe pain in the abdomen, without nausea or vomiting. Her father, who is a physician, spoke of her appearance as toxic.

A neurologic examination made by Dr. Peter Bassoe after admission to the hospital revealed a bilateral Babinski reflex; ankle clonus; weak right knee-jerk (fair on reinforcement); left knee-jerk slightly weaker; wrist and elbow reflexes present. The abdominal reflex was not elicited.

The examination pointed to a transverse lesion (partial) of the spinal cord in the upper thoracic region. The exact location of the lesion was rendered difficult because of the absence of sensory disturbances.

October 22, the mother stated that the child had had a very restless night. At intervals of from one-half to one hour, and occasionally at shorter periods, the child would suddenly awaken from a deep sleep with a cry. She stated that she did not have pain at such times. The legs became flexed, and the muscles of the lower extremities, especially those of the thigh, became firmly contracted. The spasm relaxed under massage, the patient then going to sleep with legs extended.

An examination at this time revealed tenderness over the lower cervical and upper dorsal vertebrae. On two occasions the child cried out and protested against being turned, but later allowed herself to be picked up and placed in a wheel-chair. Later she turned on her left side with slight aid, and remained quiet while examined by Dr. Bassoe.

A roentgen-ray examination, October 24, revealed a distinct but not marked change in the body of the fourth dorsal vertebra. There was a distinct area of rarefaction involving the right half of the body. The distinct outline of the body of this vertebra was broken and somewhat irregular. A diagnosis of a transverse lesion of the cord secondary to some disease process in the vertebrae was made. A positive diagnosis of the character of the bone lesion was not made.

An operation was performed, November 2. A longitudinal incision about 6 inches in length was made over the spines of the second, third, fourth and fifth thoracic vertebrae. The laminae were removed, and a friable, vascular mass containing calcareous particles was found. This extended about 2 inches along the cord, surrounding it. As much of this mass was removed as possible. The dura was not opened, for fear of transplantation of the growth within the meninges. The wound was closed in layers.

For some unaccountable reason, the patient passed into profound shock. The operation was easily performed, and but little blood was lost. It was thought that the patient would die during the afternoon. The temperature rose that evening to 105.6 F. The patient recovered rapidly from the shock. In forty-eight hours the temperature was normal. From November 4 on, the patient made rapid progress. December 5, almost four weeks after the laminectomy, the wound was reopened, and 50 mg. of radium was placed in the region formerly occupied by the tumor. This was left in position for eighteen hours.

The patient left the hospital, December 7. Evidences of return of function in the extremities with decrease of spasticity were marked at this time.

At the present time, recovery is complete. The child runs, skates, goes to school each day and is practically normal. After her return home, roentgen-ray treatment was continued for some time.

The tissue removed contained many calcareous particles. On section there were found numerous rather large round and spindle cells, which formed the great part of the growth. Scattered throughout were giant cells. These were not so numerous as in many giant cell growths. Numerous trabeculae of bone are found. This bone is apparently newly formed, for it could not be the result of the distruction of preexisting bones because of the position and different appearance of the bone that had undergone resorption. Mitoses are not seen in abundance, but there is a polymorphism about the cells and a nuclear hyperchromatism which seems to warrant a diagnosis of giant cell tumor. The growth is undoubtedly ossifying.

OTHER CASES OF VERTEBRAL TUMOR

In attempting to analyze this group of cases, one encounters many difficulties. Some of the cases were reported before the knowledge of osteitis fibrosa was as complete as now, and in some cases the microscopic findings are not described as minutely as desired. I have grouped, however, the cases that have a clinical history compatible with giant cell tumors and in which histologic examination of tissues removed at operation would seem to warrant such a diagnosis.

The number of opinions that have been expressed concerning the tissue removed from the patient on whom I operated indicates the difficulties that may be encountered in analyzing the cases. Some of the opinions will be given to indicate the difficulties of interpretation of histologic findings. It is often difficult to determine the biologic properties of cells occurring in pathologic tissues and to determine what will occur. The following are some of the opinions that have been expressed: "New bone forming in giant cell tumor." "Benign giant cell tumor with new bone formation." "Hemangioma." "Angioma with new bone proliferation —not atypical bone." "Chronic inflammation and repair—fairly vascular callus complicated by foreign body giant cells." "A neoplasm suggesting benignancy composed of mesodermal elements." "This would be called a benign giant cell tumor, that in its new bone formation resembles a case in which the patient died of general metastases." One pathologist says, "I do not know whether it is a neoplasm or not as I have never seen one like it. It suggests a benign giant cell tumor with new bone in it." These opinions have been cited to indicate the difficulties that may be encountered in interpreting the character of some of these growths. The clinical course, as well as the diversity of opinion concerning the histologic interpretation, would indicate that there may be some doubt as to its nature.

Including the case that I have reported, seventeen cases of primary giant cell sarcoma or tumor of the vertebrae appear in the literature. Only those cases have been included in which a histologic diagnosis has been made. The youngest of the patients was 7 years of age; the oldest, 40.

The lesion occurred in the cervical vertebrae, once; in the dorsal vertebrae, six times, in the lumbar vertebrae, seven times, and in the sacrum, once. In three cases, no mention is made of the location of the affected vertebrae.

In none of the seventeen cases have metastases occurred. Local recurrences have been noted. In a case observed by Madelung, a recurrence was noted four years after the primary operation, and another six years later. Four of the patients died: the one just cited, operated on by Madelung, and another, operated on by Thompson. In this case the operation was not completed because of the vascularity of the growth; the patient died some four months later. In a case observed by Leake, no operation was attempted. The patient died, apparently of an ascending urinary infection. A patient observed by Cushing died four years after an operation. It is not stated whether in this case death was caused by the tumor or not.

Ossification has occurred in three of these growths. This change, occurring relatively much more frequently in these tumors than in giant cell tumors of long bones would indicate that these lesions differ, and raises some question as to their etiology. This will be mentioned later in discussing the effects and results of intramedullary hemorrhage. In Schumann's case, the growth recurred rapidly after operation, and the patient became so ill that relatives wished to take him home, thinking that he was about to die. Soon afterward, the tumor ceased growing. When the patient was seen nine and one-half years later, a bony mass occupied the site of the original tumor. In the case reported by Sick, ossification was also noted. In the history of this case [1] it is stated that the patient was given solution of potassium arsenite (Fowler's solution).

The tumor operated on by Ashhurst recurred rapidly. Coley's toxins were then given. The tumor ceased growing, and a bony mass developed at the site of the

1. Sick: Personal communication to Manheimer.

original tumor. The patient was well seven and one-half years after the treatment was first instituted.

Spontaneous cessation of growth with ossification, and ossification after the administration of an arsenic preparation, naturally raise the question whether the lesions might not have been some variety of bone cyst or a reactive tissue growth resulting from trauma. The diagnosis in these three cases in which ossification occurred was giant cell sarcoma. It is interesting to note that an operation was subsequently performed on the patient observed by Harmer, during which tissue was removed from the sides of the spines of the lumbar vertebrae. This was examined histologically, and a diagnosis of bone cyst made.

In three cases, paraplegia has persisted, notwithstanding the fact that the growth has disappeared or ceased to enlarge. Destruction of the cord occurs unless these growths are recognized and removed, at least partially, before they invade or compress it.

An abstract of the histories of the cases will be given. The cases in which the patients have recovered will be considered first:

CASES REPORTED BY OTHER AUTHORS

CASE 1 (Madelung[2]).—A youth, aged 19, had cervical vertebra involvement and motor and sensory disturbances. There was a history of trauma. The patient recovered after incomplete removal with curet. The patient entered the university clinic in Strasbourg in the spring of 1905. He had been struck in the back with stone when 5 years old. At the present time he complained of pain in the neck when flexed, followed by motor and sensory disturbances. The patient was referred to the medical clinic at Strasbourg, where a diagnosis of tumor of the vertebra was made. Operation was performed by Madelung in May, 1905, six months after the beginning of the present illness. The tumor was found to have developed from lateral parts of the third and fourth cervical vertebrae. A thin bony shell with parchment-like crackling was exposed. When opened, a dark, bloody fluid escaped. The contents, when curetted away, formed a soft, reddish black tumor mass. A cavity the size of a small hen's egg remained. An extension toward the vertebrae, which, according to the description, was not reached, had the same contents. Histologic diagnosis made by Dr. Schmidt was: giant cell-myeloid sarcoma (very vascular). There was complete disappearance of symptoms. When examined three months after operation, the patient was reported as well and able to work.

CASE 2 (Schumann[1]).—A man, aged 27, had involvement of the lumbar vertebrae and paraplegia. Spontaneous ossification of the tumor occurred, the paraplegia persisting. The diagnosis was giant cell sarcoma. The patient, in May, 1898, noted pain in the back, followed by a tired feeling and sensation of weight. In June, 1898, total paraplegia, with bladder and rectal disturbances, occurred. There was some swelling over the second lumbar vertebra. A soft, rapidly growing tumor developed. In August, 1898, incomplete removal of the tumor was done; there was a rapid recurrence. In April, 1899, the tumor had reached the size of a man's head. There was marked decubitus. The patient was discharged from the hospital in a pitiable condition. He was admitted again nine and one-half years later. The growth soon ceased after the patient's discharge from the hospital and became bony hard; decubitus healed; the bladder and rectal disturbances remained. A roentgenogram revealed the shadow cast by the bony mass.

CASE 3 (Manheimer[3]).—A girl, aged 16, had involvement of the lumbar vertebrae (transverse processes). There was pain radiating to the lower extremities, but no cord involvement. The diagnosis was: osteoid spindle cell sarcoma with myxomatous areas containing giant cells. The patient was treated with atoxyl; she was observed only five months. Four weeks before entering the clinic she noted a swelling in the right lumbar region. The tumor enlarged without spontaneous pain. A mass the size of a fist was found to the right of the lumbar vertebrae at the level of the spine of the second. Roentgen-ray examination revealed destruction of the transverse process of the second lumbar vertebra. Pain radiating to the lower extremities was noted. The tumor was removed as completely as possible, about 8 cm. of spinal dura being exposed. The patient was given, every other day, 0.01 gm. of atoxyl intravenously from May 9 to June 25. She was observed five months, at the end of which time she appeared well.

CASE 4 (Sick[1]).—There was a large fluctuating tumor between the iliac crest and the twelfth rib on the left side, and pain over the sciatic nerve and higher lumbar roots. The diagnosis was: giant and mixed cell fibrosarcoma. A partial removal of the tumor was made. Solution of potassium arsenite was given. The patient was well four years later, a distinct shadow being apparent between the iliac crest and the twelfth rib in the roentgenogram.

There was a large fluctuating tumor between the iliac crest and the twelfth rib on the left side. The patient was considerably emaciated. Exposure of the fluctuating mass revealed a tumor which had broken through the musculature. On the abdominal side, this had a bony capsule. Large masses of tumor could be removed. There was apparently no improvement following operative procedure. Solution of potassium arsenite was given. Believing that he would die, relatives took the patient home. Four years later the patient, when seen by Sick, was perfectly well. Ten years later, the patient was alive but not well. Whether there was recurrence or not is unknown.

CASE 5 (Ashhurst).—A boy, aged 14, had involvement of the fourth and fifth lumbar vertebrae. After operation, he was treated by Coley's toxin. Ossification of the tumor took place. Seven years later the patient was well, and served in the army. The diagnosis was: giant cell sarcoma. There was a bulging mass in the right loin of from six weeks' to two months' duration. The roentgenogram revealed involvement of the fourth and fifth lumbar vertebrae. An incision was made, Dec. 28, 1913; blood and tissue were removed, and the wound was packed for hemorrhage. Coley's fluid was given after three weeks, being increased gradually to 42 minims (2.6 c.c.) at a dose, every second, third and fourth day. The incision healed in a few weeks. The mass continued to increase in size, broke down in September and discharged, and then became gradually of bony hard consistency. A roentgenogram, seventeen months after operation and seven months after cessation of treatment, revealed the shadow of a dense bony tumor. This patient was later accepted for the army and was wounded. He was perfectly well in 1920.

CASE 6 (Harmer[4]).—A boy, aged 16, had symptoms of involvement of the lumbar vertebrae and spinal cord. There was a history of injury three months before at the beginning of the symptoms. The diagnosis was: giant cell sarcoma. There was rapid recurrence after operation. Coley's toxins were given. Recovery followed. Later tissue was removed from the spinous process of the third lumbar vertebra, which was found to be a circumscribed bone cyst. Three months before entrance to the hospital, June 10, 1912, the patient fell, striking his spine. Pain and tenderness had persisted since. For two weeks, there was numbness over the external and anterior surface of the right thigh, with loss of sensation. The patient walked with slight instability, complaining of weakness of the right knee. He stepped with great care, as the slightest jar caused excruciating pain in the lower dorsal region, shooting up to the head. A slight depression was found in the region of the tenth dorsal spine, with a swelling about the size of the hand in the subcostal region posteriorly. Both legs could be raised to about one third the normal arc. Beyond this, pain was caused in the back. There was ankle clonus and Oppenheim's sign on the right side. There was an area of analgesia over the external aspect of the right thigh just below the trochanter. Roentgen-ray examination was negative. An operation performed June 26, 1912, by Dr. Porter, revealed

2. Madelung: Riesen Zell-Sarkom der Wirbelsaule, München med. Wchnschr. **56**: 479, 1909; a case report presented before the Medical Society of Leipzig, 1908.

3. Manheimer, E.: Ueber Heilung scheinbar inoperable Wirbelsarkome durch Arsentherapie, Beitr. z. klin. Chir. **72**: 741, 1911.

4. Harmer: A Study of the Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma, Boston M. & S. J., 1915, p. 61.

a bluish, rather tense but fluctuant mass beneath the muscles of the back. From this, when incised, a quantity of dirty fluid escaped. The tumor was removed as completely as possible. Bleeding was profuse. The cavity was tightly packed. The patient was put to bed in poor condition, but recuperated rapidly. Treatment with mixed toxins was begun at once, and continued for seven months; injections were given at first every other day, then twice a week. The maximum dose was 18 minims (1.1 c.c.); injections were made sixty-two times. The reaction was usually severe. There was a rapid recurrence of the tumor, 5½ inches in length, 3½ inches in breadth and elevated 2 inches, associated with paresis of the right leg. Injections were given in spite of the severe reaction. The tumor began sloughing in several places. In June, 1913, there was no evidence of a mass or any disturbance of sensation in the legs. Another operation was performed in June, 1914, a small mass having been discovered in roentgen-ray examination on the lateral surface of a spinous process of the third lumbar vertebra. This proved to be, when removed, a circumscribed bone cyst. There was no evidence of malignancy. The patient was well two years later.

CASE 7 (Rasch[5]). — The tenth and eleventh thoracic vertebrae were involved. There was compression of the cord. Pathologically, the diagnosis was: a giant cell tumor that had infiltrated the cord and spinal nerves with almost total destruction.

CASE 8 (Mixter).—A man, aged 31, had involvement of the fourth and fifth thoracic vertebrae. There was no history of trauma. The symptoms were girdle pains, weakness and numbness of the legs, paralysis and sphincter disturbance. Recovery followed incomplete removal of the tumor. The patient was subsequently treated with Coley's toxins and the roentgen ray. There was a complete motor paralysis and marked general sensory disturbances below the level of the fifth dorsal segment. Paralysis was more complete on the left side. The symptoms pointed to a rapidly progressing lesion at the level of the fifth dorsal segment. Complete block of the spinal canal was indicated by spinal puncture. Feb. 14, 1922, laminectomy was performed by Dr. W. J. Mixter. The laminae of the fourth and fifth dorsal vertebrae were removed. The bone seemed softer than normal. Overlying the dorsal aspect of the cord and to a slight degree straddling it was a rather flat, dark red vascular mass about 1 inch long. This was easily and cleanly removed from the dura by separating adhesions. A roentgenogram taken the day before the operation gave no positive indication of any abnormality. The patient was subsequently treated by the roentgen ray and Coley's toxin.

CASE 9 (Coley).—A man, aged 21, before treatment was seen by Dr. Brewer, who described the tumor as looking like a sofa pillow. The tumor was pronounced by Dr. Harlow Brooks to be a round cell sarcoma with numerous giant cells. Coley classified the tumor as an atypical giant cell tumor with local malignancy. No treatment other than Coley's toxins was given. The patient has recently been examined by Dr. Coley, and is well twenty-two years later.

5. Rasch, W.: A Case of Primary Giant Cell Sarcoma of the Spine, Hygiea **84**: 769 (Oct. 16) 1922.

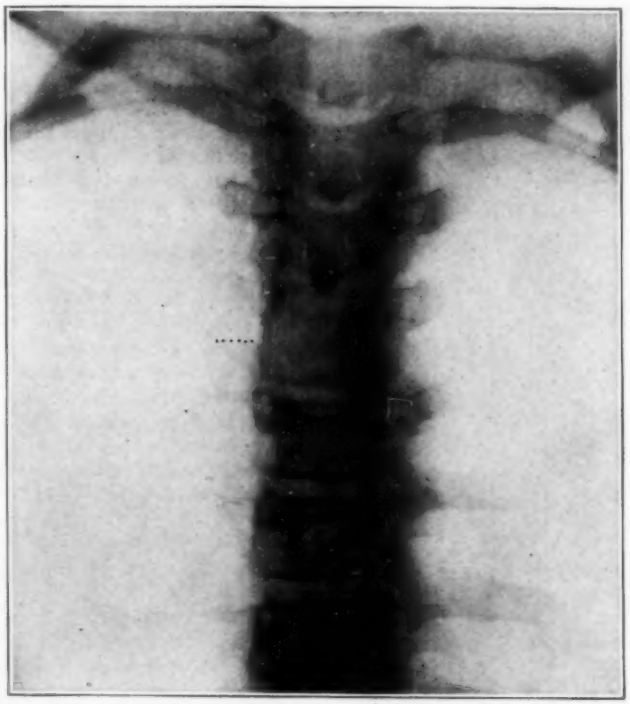

Fig. 1.—Distinct area of rarefaction and an irregularity in the outline of the body of the fourth dorsal vertebra, indicating bone changes; the site of the lesion is indicated by the dotted line.

CASE 10 (Follis).—A colored man, aged 40, had a small tumor mass near the angle of the scapula, which, in eight months, reached the size of a grapefruit, when it was operated on. The tumor recurred rapidly. A second operation was performed four months later in the patient's home. The recurrence was a large, protruding tumor, extending from the sixth to the twelfth rib. The tumor fluctuated. The skin was red and adherent. The recurrence was removed. The pathologic diagnosis was a giant cell tumor or xanthoma. Microscopically, there were a large number of giant cells of the epulis type. The giant cells were embedded in a very cellular stroma mixed with numerous round cells of the sarcoma type. The diagnosis, according to Bloodgood, rested between giant cell tumor and a round cell sarcoma containing giant cells. The patient was discharged, April 28, 1920. There was no answer to an inquiry concerning his condition.

CASE 11 (Cushing).—M. I., a girl, aged 13 years, was admitted to the hospital, Nov. 20, 1922, with the complaint of paralysis and loss of sensation in both legs. Subjective findings were: complete loss of motion and sensation in both legs. Objective findings were: 1. No voluntary movement in the legs, buttocks or iliopsoas. 2. Complete loss of all forms of sensation below the level of the eleventh thoracic vertebra, with the exception of sensation in the periosteum, which was poorly localized. 3. Loss of sensation to light touch for 2 inches above the level of the eleventh thoracic as well as below. The level of loss to light touch shifted for an inch or two, depending on whether stimulation came from an upward or a downward direction. 4. Loss of knee jerks, both sides. 5. Presence of the Achilles jerk on both sides, but plus on the left. 6. Flexor response to plantar reflex on both sides. 7. Protective reflex, most marked on the left. 8. Automatic bladder and rectum. An operation was performed, March 23, 1922. Laminectomy disclosed a giant cell sarcoma, which was entirely extradural. Fairly complete extirpation of the tumor was performed. Jan. 2, 1923, when the patient was discharged, it was noted that there was no voluntary movement in the lower extremities. The reflex of automatism was marked on both sides. Bilateral Babinski and tendon reflexes were present at both knees and ankles. There were slight clonic movements at times in the right ankle. There was no sensation except to pain on the inner side of the thigh at times. Otherwise, the patient was anesthetic below the twelfth dorsal vertebra. There was urinary incontinence. The patient voided frequently and spontaneously; this was not an overflow incontinence, though no certain method was found to cause urination. The nutrition of the lower extremities was good. There was marked sweating of the feet and slight extensor rigidity. A healed bedsore was present. General health was excellent. The microscopic report on tissue removed was: a tumor composed of spindle shaped cells, together with many giant cells. The nuclei of the giant cells tended to be arranged in a cluster in the center of the cell. There was extensive hemorrhage and numerous small blood vessels throughout the tumor. The intercellular substance stained red in many areas. Small round cells were scattered throughout the tumor growth. There were several sections of normal bone tissue. The tumor no doubt arose from the vertebrae. The tumor, pro-

nounced a giant cell tumor, protruded between the laminae of the tenth and eleventh thoracic vertebrae. On the left side, the tumor definitely involved the laminae. Bone and tumor were scooped out, a soft mass the size of a walnut being removed. The tumor inside the canal was grayish and surrounded the cord, extending in between the roots of the nerve. It appeared to surround the cord above the lumbar enlargement for a distance of 2 inches. It was readily removed from the dura, but with difficulty between the roots. Apparently the dura was not involved at any point. A letter, Sept. 10, 1923, stated that sensation and motion were absent in both lower extremities, and that the patient had not regained control of the bowels and bladder.

CASE 12 (Cushing).—H. K. G., a boy, aged 16, with a giant cell sarcoma, was well seven years after operation. Pain in the lower dorsal and lumbar region began two years after a scuffle with another boy. The pain was dull in character, without radiation. A mass was noted in back almost one year after the beginning of severe pain. This had gradually

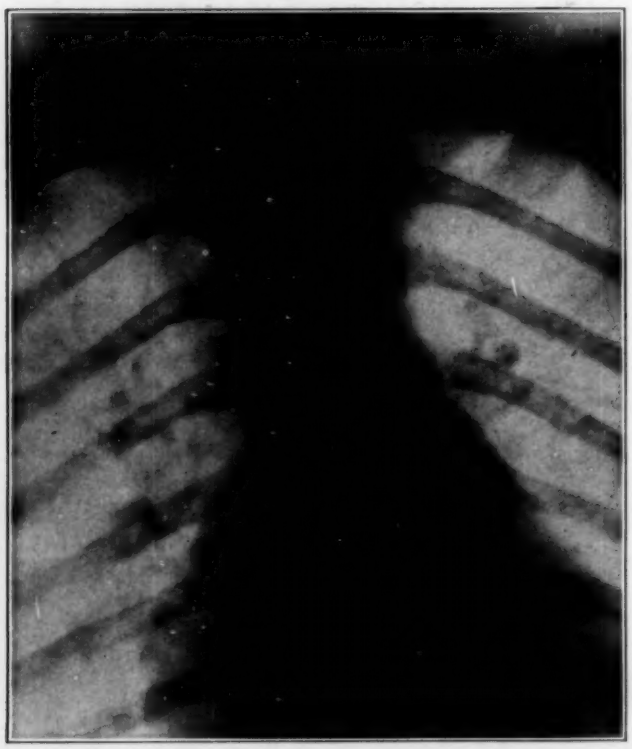

Fig. 2.—Appearance two years and nine months after the operation: complete bone repair at the site of the former lesion, and no evidence of recurrence.

grown larger, and was very tender to the touch. Weakness of the legs was noted. There was no disturbance of the vesical or anal sphincter. At operation, all the tissues were much more vascular than normal. The spines of the eleventh and twelfth thoracic, and the second and third lumbar vertebrae were intact, though much softened. The rest of the lumbar spine was the seat of a vascular, pulsating, soft reddish tumor covered by a thin shell of bone. The tumor passed off to the right, in correspondence with the appearance in the roentgenogram. Partial removal was made. Subsequent roentgen-ray treatments were given. The tissue was formed of cartilage and bone, with spaces in between containing a coarse fibrous tissue in which were numerous multinucleated giant cells. The bony tissue was rather intermediate between the cartilage and the bone. The tissue between the bony spicules was not very cellular and contained innumerable capillaries—osteoclasts and osteoblasts. No apparently actively growing tissue was seen.

Four patients, whose case histories follow, died. The case observed by Madelung may be somewhat doubtful, as the histologic diagnosis is not exactly clear. The tumor recurred twice during a period of ten years, but at the time of death there were no evidences of metastases.

CASE 13 (Madelung).—A man, aged 25, had a tumor situated in the lumbar region extending from the twelfth rib to the iliac crest. An operation was performed, Nov. 15, 1890. A bony shell surrounded a soft mass that resembled coffee grounds. The tumor was removed as completely as possible. A microscopic diagnosis of osteoid sarcoma with giant cells and myxomatous tissue was made. Four years later, another operation was performed, and six years later still another. The patient died, but no metastases were reported; there were local recurrences.

CASE 14 (Thompson).—A man, aged 24, entered the hospital with a large fungating growth over the sacrum. He was paralyzed in the lower extremities and had lost control of the bladder. No other notes are available. An operation had been previously attempted and given up because of hemorrhage. The patient died four months afterward. The histologic diagnosis in this case was giant tumor of the benign type.

CASE 15 (Leake).—W. H., a farmer, had been injured five years before in the region of the lumbar vertebrae. The symptoms consisted of pain and soreness in the back. The pain was thought to be due to a focal infection. The tonsils were removed, with no relief. He was placed on a Bradford frame with traction. Procain was injected in the sciatic nerve without relief. The patient later became paralyzed in the left leg, and remained so until death. Seven months prior to death, he lost control of the bladder and rectum. Large bedsores developed. In the lumbar region to the left of the spine, a tender spot was found, but no tumor was palpated. The patient died in April, 1923. When the necropsy was performed, a hemorrhagic mass, which had destroyed the muscles, was found. This developed apparently from the first and second lumbar vertebrae, and extended 3 cm. to the left of the midline. Removal of the laminae revealed an osteogenic tumor which arose from the transverse processes, practically filling the spinal canal. Leake was of the opinion that it was a benign giant cell tumor which had produced paralysis, ending fatally.

CASE 16 (Cushing).—R. H. C., a girl, aged 13, was operated on, and a sarcoma of the sacral canal was partially removed. The principal constituent of the tissue was very large giant cells, staining feebly, and often greatly vacuolated; the giant cells were of all sizes. Death occurred four years and four months after an incomplete operation. The patient was admitted to the Peter Bent Brigham Hospital, July 14, 1915, complaining of pains in the lumbar region noted six months before admission. During the past three weeks, the pains extended down the left leg to the foot in periods. Both legs hurt. The pain was very severe when it came on. There had been rapid loss in weight. For nearly six weeks there had been some rectal disturbance. At first there was marked urgency. For three weeks there had been no sensation—incontinence, no retention. Rectal sensation was retained, and sensation was not disturbed. The patient could walk several hundred feet at a time, but had sacral pain after sitting for a time. The tumor had perforated the anterior wall of the sacrum and filled the greatly dilated spinal canal. The patient died four years after the operation was performed. The cause of death is not given.

SUMMARY

The tumors that have been considered have some definite peculiarities. In none of these have metastatic growths been observed. Local recurrences have occurred in several, but these have been controlled rather easily by a number of different measures. In Manheimer's case the importance of atoxyl in the treatment is emphasized. In several of the cases, Coley's toxins were administered. The roentgen ray and radium have been used in other cases. Spontaneous

cessation of growth occurred in the case observed by Schumann unless partial excision may be considered to have affected the growth. The tumor was, however, increasing rapidly in size when the patient left the hospital, without any evidence of cessation in growth. Recovery after partial removal or no attempt at removal has been noted in thirteen of the seventeen cases. In none of these has an attempt at complete removal been made, either because of the possibility of injuring the cord or because of extension of the growth into inaccessible parts.

Ossification, occurring relatively frequently in these lesions, would indicate that they differ in some respects from central giant cell tumors occurring in long bones, although repair may occur in these following curettage; but, when this procedure is attempted, by far the greater part of the tumor is removed. Ossification occurs in bone cysts; but, judging from the description of the histologic findings in those cases in which ossification occurred, it seems certain that the lesion was a giant cell tumor.

Because of their clinical behavior, some doubt is raised as to the neoplastic character of some of these growths, which are regarded by a few pathologists as a reactive tissue growth or an attempt at repair following trauma, in which there is formed excessive granulation tissue.

Lubarsch and Konjetzny especially have emphasized that many of these lesions represent a reactive tissue growth following trauma. Konjetzny's conclusions are confirmed by the experimental work of Bajardi, Haasler and Enderlen. Following a hemorrhage into the marrow, the supporting tissue of the marrow proliferates to form a very cellular zone about the hemorrhage. This may form fibrous tissue to surround the hemorrhage, or invade it, transforming the coagulum into a scar. In other cases, the tissue, forming as the result of a hemorrhage due to trauma, may continue to grow until tissue is formed similar to that of a giant cell tumor. Such granulation tissue containing giant cells is found in pseudarthroses, delayed callus formation and Köhler's disease. Such reactive tissue growths may resemble histologically a giant cell sarcoma, when biologically they should be regarded as a chronic reparative process. This excessive formation of reparative tissue occurring under certain circumstances may be compared to the keloid of the skin.

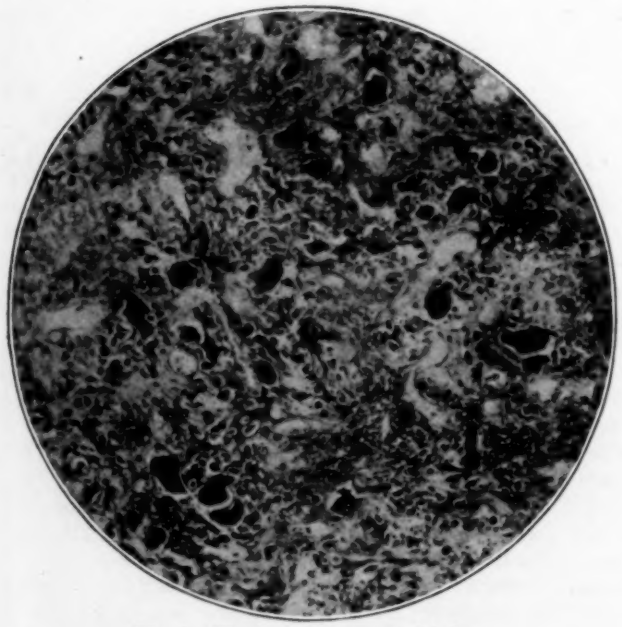

Fig. 3.—Histologic appearance of lesion.

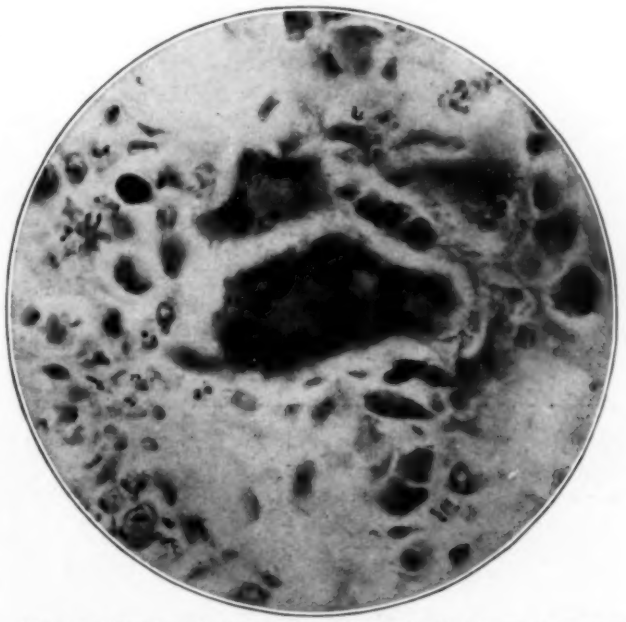

Fig. 4.—Character of giant cells and karyokinetic figures in some of the other cells in material removed at operation, as seen under high power.

The tissue removed from the patient in the case that I reported resembles histologically that of a giant cell tumor. The history following operation, as well as the diversity of opinion that seems to exist regarding its exact nature, suggests that the lesion may represent some chronic resorptive process with an excessive formation of granulation tissue, which is not a tumor in the strict sense of the word.

This group of cases raises some doubts as to the exact nature of many of the so-called giant cell tumors and their biologic significance.

952 North Michigan Avenue.

Incidence of Communicable Diseases Among Children.—In studies in child hygiene, made by the U. S. Public Health Service (S. D. Collins, *Pub. Health Rep.* **39**:1566 [June 27] 1924), information was obtained from about 35,000 school children as to whether they had ever had measles, whooping cough, mumps, chickenpox, scarlet fever, or diphtheria. The children were classified according to age, sex, color and nativity or nativity of parents. The curves of the percentage of children who had had an attack of these diseases at some time in their lives rises fairly rapidly as age increases until about the thirteenth or fourteenth year, after which time the rise is very slow, except in the case of mumps, which continues to rise through the nineteenth year. When the annual incidence was considered, it was found that for the ages studied the maximum incidence of measles was from 6 to 7 years; whooping cough, 5 to 6 years; mumps, 7 to 9 years; chickenpox, 5 to 6 years; scarlet fever, 8 to 10 years, and diphtheria, 5 to 7 years. By the time the adult ages were reached, about 89 per cent. of the children had had measles, about 78 per cent. had had whooping cough, 65 per cent. mumps, 52 per cent. chickenpox, 12 per cent. scarlet fever and 9 per cent. diphtheria. Measles, whooping cough, chickenpox and scarlet fever seem to have been more prevalent among girls than among boys. The rates for mumps and diphtheria are about the same for the two sexes.

MULTIPLE ELECTRICAL STETHOSCOPE AND ELECTRICAL FILTERS AS AIDS TO DIAGNOSIS

PHONOGRAPH RECORDS OF HEART MURMURS *

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PHILADELPHIA

The electrical amplifier stethoscope furnishes in the auscultatory portion of physical diagnosis an instrument that may make possible advances comparable with those which resulted from the introduction of the microscope in the field of anatomy. By its magnification of sound, it makes available murmurs and lung sounds hitherto inaccessible. By the use of electrical filters which may be connected with it, it enables the clinician to analyze chest sounds in a way heretofore impossible, and to magnify to a still greater degree those which he suspects of being of importance.

Fig. 1.—The multiple electrical stethoscope used to instruct a small group.

The instrument, which has been previously described,[1] has been still further improved by its designers, the Western Electric Company. The amplifier has been greatly increased in efficiency so that it can now supply a thousand or more receivers with sounds of the intensity heard with the usual stethoscope. It has been assembled in a single unit mounted on wheels to allow its convenient transportation from place to place, and simplified to permit its operation by a person with little electrical training.

The electromagnetic transmitter unit has been redesigned so as to exclude almost completely interfering room noises. This has been accomplished by making it relatively inefficient for the transmission of air-borne vibrations, yet very sensitive to those reaching it through the patient's body.

It is still possible, however, for the instructor to comment on the sounds heard. This may be done by speaking toward the patient with the mouth about 12 inches from the chest, which, acting as a sounding board, picks up the vibrations, and through the amplifier and individual receivers relays them to the class. In this way, instruction may be given without interrupting the sounds to which the class is listening, and without the necessity of removing the stethoscope tubes from their ears. Even extensive instruction may conveniently be given in this way when patients are used who are too ill to be transported, by extending the wires from the ward to the class room.

The advantage of the previous instrument in magnifying with especial efficiency the vibrations of the relatively low frequencies in which the diagnostician is interested is present to an even greater degree in the new design. The provision of a single receiver for each listener, to which he connects his own stethoscope, has been continued. Greater convenience has been secured by the provision of a small projecting tube, over which may be slipped the rubber tubing of the stethoscope headpiece. There has also been added a spring hook on the back of the receiver, to be slipped into a buttonhole of the listener's coat, thus supporting its weight and leaving the hands free.

The advantages of such an apparatus for the teaching of medical students has already been described by Dr. Richard Cabot,[1] in whose classes the further improvements here described have been tested. These advantages may be appreciated when it is considered that all varieties of pathologic sounds known to the usual form of stethoscope may be faithfully transmitted and simultaneously heard in identical form by the instructor and an almost unlimited number of students. Waste time while waiting for the students to listen serially, and all chance of temporary alterations in the patient's sounds, are thus eliminated.

The large size of the audience which the electrical amplifier stethoscope can supply was shown at the session of the American Medical Association at Chicago in June. The Motion Picture Theater on the Municipal Pier was wired with a distributing system supplying an audience of 528 with individual receivers. Through these was given a demonstration of murmurs, râles, breath sounds, placental souffle, and fetal heart tones. Except for the last, only a portion of the available amplification was necessary.

Since the previous articles, by the use of attachments known as electrical filters, even better results have been secured with the instrument. The filters are connections of electrical inductances and capacities whereby only the electrical vibrations either above or below a chosen frequency may be transmitted, the remainder being eliminated. A rough picture of their action may be secured by imagining a musical composition played on a mechanical piano. If, in the midst of the piece, all the notes below middle C were to be thrown out of action, it would obviously be possible to devote more concentrated attention to the treble notes. This would correspond to the action of what is known as a high-pass filter with a cutoff at 250 cycles per second.

* Read before the Section on Practice of Medicine at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

* The majority of the cases on which this report is based were studied in the medical wards of the hospital of the University of Pennsylvania in the service of Prof. Alfred Stengel, the remainder at the Massachusetts General Hospital through the kindness of Dr. Richard C. Cabot. The patients used in making phonographic records were studied in the Presbyterian Hospital, New York. For this privilege I am indebted to the courtesy of Prof. W. W. Palmer.

1. Cabot, R. C.: A Multiple Electrical Stethoscope for Teaching Purposes, J. A. M. A. **81**: 298 (July 28) 1923. Gamble, C. J., and Replogle, D. E.: A Multiple Electrical Stethoscope for Teaching, ibid. **82**: 387 (Feb. 2) 1924.

With another filter it would be possible to stop the treble notes and listen only to the bass. Other filters still could cut off either the low or the high notes at other chosen points. If desired, a single octave might be allowed to play, the entire attention being devoted to the notes it contains.

If the approximate pitches of the sounds of interest to the diagnostician are known, the advantage of the filters becomes great. They may be set to include only the pitch desired, and with the use of high magnification, the presence or absence of the sound in question is readily determined.

It was found at the outset of the work that the pitches of these pathologic sounds were not known. The more usual murmurs and lung sounds, of course, are not pure musical tones, but have components of many pitches with a point of maximum energy, because of which they may be roughly described as high pitched or as low, rumbling murmurs. These descriptions are known to vary markedly with the observer making them. Previous to the use of electrical filters, there was no satisfactory way of determining whether these relative descriptions were accurate, or what the frequency of the maximum energy of vibrations might be.

After the use of the apparatus on about 200 patients, it is possible to outline roughly these limits and to determine a number of the diagnostic advantages that may be secured with filters. It was found, in the first place, that relatively few of the murmurs to which the diagnostician listens have components of any magnitude above 660 cycles per second. Only in the rarest instances could more than the slightest difference in the character or intensity of the murmur be detected when all the vibrations above this point were excluded, and in no case was this difference of diagnostic significance.

The exclusion of these high sounds, however, had a very distinct advantage, for it eliminated a number of the interfering room noises and the faint high-pitched sounds that are inseparable from the operation of the vacuum tubes. The sounds thus excluded roughly resemble those heard when a conch shell is held over the ear. For routine use, therefore, such a filter, termed a low-pass 660 cycle filter, is customarily included in the circuit.

With a filter cutting off vibrations above 140 per second, an occasionally valuable diagnostic advantage may be secured. In cases in which a diastolic murmur continues throughout the diastole and the presence of a presystolic murmur is suspected, this filter will nearly eliminate the diastolic, with little diminution in the intensity of the presystolic.

The maximum intensity of the first and second sounds of the heart lies in a range of frequency that is extremely low. Advantage may be taken of this fact in cases in which only these sounds are of interest. In listening to the fetal heart, for example, a filter cutting off all sounds above 130 per second is of great advantage, for by its use all voice and room noises and most of the vibrations caused by accidental friction on the surface of the transmitter or the abdomen are excluded. Great amplification is thus made possible. By this means, with five stages of amplification, the fetal heart tones have been reproduced on a loud speaker. The pleasure it has given the mother to hear the child's heart beating thus, and to be assured of its well being, is a very distinct advantage of the amplifier. The usefulness of such a device in obstetric deliveries has been repeatedly mentioned. It seems possible that, with the great magnification of the instrument, earlier detection of the fetal heart, the best incontrovertible evidence of pregnancy, may be secured.

In the case of systolic and diastolic murmurs, filters of the opposite type which transmit only the higher frequency vibrations are extremely useful both in teaching and in diagnosis. By their use it is possible to decrease greatly the intensity of the first and second sounds of the heart, while leaving the murmurs at full strength. Thus, in cases in which the murmur may be masked by the more intense sounds, or in which a faint murmur may escape detection because of the distraction the other sounds occasion, it can often be heard clearly with such a filter. This is of especial advantage in teaching students to recognize a faint or short murmur, for, after having heard it distinctly with the aid of the filter, they can immediately listen to it in the more normal manner, thus becoming acquainted with the murmur in the form in which they must learn to detect it with the acoustic stethoscope.

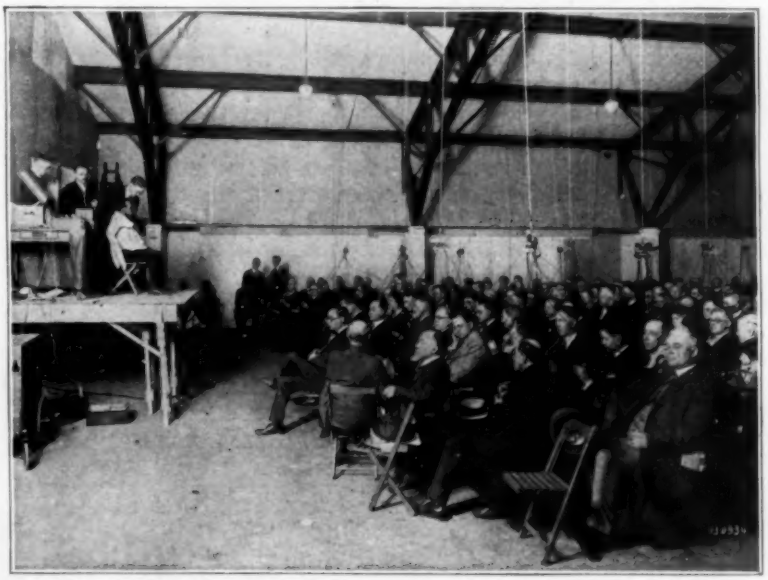

Fig. 2.—Demonstration of the electrical stethoscope to an audience of 500 at the recent annual session of the American Medical Association.

Filters of this type, or high-pass filters, as they are called, are useful also in cases in which it is desired to listen to râles or breath sounds in close proximity to the heart. The prominence with which they bring out even a faint pericardial rub is startling. For all these uses it was found that a filter transmitting only vibrations above 130 per second gave the best results.

With abnormal breath sounds, filters are of less value. They have not yet been shown to be of assistance in differentiating one type of breathing from another, for both inspiration and expiration appear to have their maximum of energy at approximately the same frequency. No detectable difference in the pitches of râles of hypostatic or tuberculous origin has yet been shown by the filters. The filters do, however, by limiting the range of frequencies transmitted, permit a much greater amplification, so that fine râles and faint abnormal breathing may be more readily detected with the elec-

trical stethoscope than otherwise. It is hoped that this may lead to earlier and more accurate diagnosis.

A fascinating possibility of the electrical stethoscope is that of diagnoses not otherwise possible. In one series of thirty-four patients known to have had heart murmurs, three murmurs were detected electrically which had been missed in a careful examination made immediately before by the same observer with the usual form of stethoscope. One of these could be heard only by the use of the Bowles chest piece when the cases were reviewed. Another could not be heard without the electrical stethoscope.

In one case of thoracic aneurysm discovered accidentally by use of the roentgen ray, a systolic murmur was demonstrated to several observers, although neither they nor other members of the hospital staff could detect it without the electrical stethoscope.

Using the amplifier and a new method of recording recently developed by the Western Electric Company, phonograph records[2] have been made of typical heart murmurs and of lung sounds. These are best reproduced electrically through the same electrical amplifier and with the use of a filter to diminish the slight scratchy quality that is heard in any phonograph record. In this way they were demonstrated at the annual session of the American Medical Association through the distributing system previously mentioned.

A reproduction which, though less satisfactory, is still very instructive may be secured by an attachment to an ordinary phonograph, providing a direct connection of the sound-box to the usual stethoscope headpiece. The sounds are improved by using from 15 to 20 feet of quarter-inch rubber tubing for the connection, as this weakens the high pitched vibrations and thus eliminates much of the scratchiness. The volume of sound supplied is ample for a dozen or more listeners, to whom it may be distributed by Y-tube connections. For a smaller number, it may be cut to the desired intensity by a screw pinch cock on the rubber tubing.

The great convenience of such records in the first instruction of the student in the recognition and classification of heart murmurs scarcely needs mention. A series of records of this type will furnish a very desirable textbook for this portion of physical diagnosis.

Further tests have been made of a greatly improved form of loud speaker whereby the sounds are generated by a large cone without the use of a horn. The results are immensely superior to those previously secured, for faint murmurs may be recognized, and the quality, though not exactly that to which the clinician is accustomed, is well preserved. The unfamiliar element in the quality arises in part from the reverberance of the room in which the loud speaker is operated. In a carefully damped and sound proof room this factor could be eliminated, but such a one is seldom or never available for purposes of instruction. In part also, the unfamiliarity is due to the absence of the distortion introduced by the usual stethoscope, a distortion which the physician comes to consider "normal."

With the cone it was found possible to fill a room, large enough to hold about two dozen persons, with murmurs or lung sounds of a fairly satisfactory quality. It is probable that this is by no means the ultimate limit of magnification.[3]

2. Myres, M. J.: The Clinical Application of the Audion Amplifier, J. A. M. A. **78**: 100 (Jan. 14) 1922.

3. A more detailed description of the electrical stethoscope will be published by H. A. Frederick and H. F. Dodge in a forthcoming number of the Bell System Technical Journal.

SUMMARY

Further improvements have been made in the multiple electrical stethoscope.

Electrical filters permit selection of the components of a sound above or below a chosen pitch, a procedure not possible in other methods of auscultation. This is of advantage in the magnification of lung sounds and murmurs, and the detection of pericardial rubs and fetal heart tones.

Phonograph records of heart murmurs and breath sounds, of a quality satisfactory for teaching, have been made and demonstrated to a large audience. With a small attachment they may be reproduced on an ordinary phonograph.

Marked progress has been made in the reproduction of chest sounds by a loud speaker.

University of Pennsylvania Medical School.

THE EFFECT OF INTRAVENOUS INJECTIONS OF CALCIUM CHLORID ON THE KIDNEY*

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AND
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ROCHESTER, MINN.

During the last two years, in the Mayo Clinic, patients with obstructive jaundice requiring operation have been given intravenous injections of calcium chlorid preoperatively in order to reduce their coagulation time, and to assist in the prevention of bleeding. Five cubic centimeters of a 10 per cent. aqueous solution of calcium chlorid has been given daily for three days, and the results—the hastening of blood coagulation, as evidenced by a lowering of blood coagulation time, and the absence of postoperative hemorrhage in jaundiced

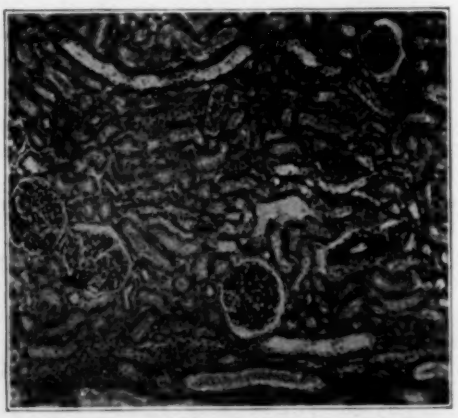

Fig. 1.—Section of kidney of jaundiced dog (× 75).

patients—have been striking. These results have been reported previously.[1] Our experimental work with intravenous injections of calcium chlorid prior to its use for human patients convinced us that, in the amounts given, no effect on renal function or renal tissue was produced either clinically or pathologically; and since we could find nothing in the literature with regard to

* From the Section on Surgery, Mayo Clinic.

1. Judd, E. S., and Lyons, J. H.: The Mortality Following Operations on the Liver, Pancreas and Biliary Passages, Ann. Surg. **78**: 194-204 (Aug.) 1923.

such an effect, we endeavored to ascertain whether larger doses would injure the structure of the kidney or interfere with its filtration powers.

It is possible, under pathologic conditions, for calcium to be deposited in the kidney. During the last twelve months, we have seen such deposits in the kidneys of a patient who died from pyelonephritis, and in the kidneys of one who died following extensive body burns. It is well known that in certain cases of mercuric chlorid poisoning, calcium deposits have been found in the glomeruli and tubules of the kidney. There are many recent reports in the literature of the diuretic action of calcium, which constitute, so far as we have been able to determine, the only reference to the effect of intravenous injections of calcium chlorid on the kidney.

MacCallum [2] asserts that the quantity of urine secreted might be markedly diminished for a time, and, in some cases, almost entirely inhibited, by the introduction of calcium chlorid into the circulation. There is no evidence of such suppression with the doses or concentration of calcium salt used in the experiments of Mendel and Benedict,[3] or in our own, which is in agreement with the work of Porges and Pribram,[4] who conclude that the suppression of urine can be accomplished only by large doses of calcium chlorid which induce a simultaneous fall in blood pressure. When the salt is introduced in concentrations that leave the latter unaffected, calcium chlorid exhibits a diuretic action. This effect has been investigated recently by Rockwood and Barrier,[5] and their results have been confirmed by Blum, Aubel and Hausknecht,[6] Lévy [7] and others. Loewenberg,[8] while ascertaining the doses necessary for the diuretic and cardiotonic action of calcium chlorid, has shown that the diuresis produced by calcium is not the result of its cardiotonic action. He found that doses of from 0.1 to 1 gm. had a manifestly cardiotonic action, while only doses greater than 1.5 gm. exhibited diuretic properties. In none of these discussions has there been any suggestion of a possible toxic effect on the kidney.

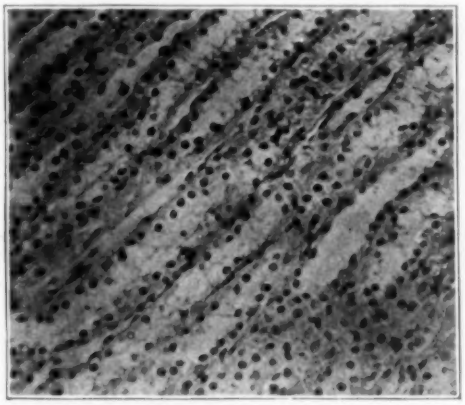

Fig. 2.—Section of kidney showing renal tubules (× 150).

In our experimental work, we used seven dogs, in four of which an artificial obstructive jaundice was produced by ligating the common bile duct under anesthesia and with aseptic technic. In order to determine accu-

2. MacCallum, J. B.: The Influence of Calcium and Barium on the Secretory Activity of the Kidney, University of California Pub., Physiol. **2**: 31, 1904-1905.
3. Mendel, L. B., and Benedict, S. R.: Paths of Excretion for Inorganic Compounds, V, The Excretion of Calcium, Am. J. Physiol. **25**: 23-33, 1909-1910.
4. Porges, O., and Pribram, E.: Ueber den Einfluss des Calciums auf die Diurese, Arch. f. exper. Path. u. Pharmakol. **59**: 30-33, 1908.
5. Rockwood, Reed; and Barrier, C. W.: Calcium Treatment for Edema, Arch. Int. Med. **33**: 643-657 (May) 1924.
6. Blum, L.; Aubel, E., and Hausknecht, R.: L'action diurétique des sels de calcium dans les oedèmes générales; mécanisme de cette action, Bul. et mém. Soc. méd. d. hôp. de Paris **45**: 1561 (July 29) 1921.
7. Lévy, R.: Sur les échanges qui se produisent entre le sang et les liquides interstitiels après ingestion de chlorure de potassium et de chlorure de calcium, Ann. de méd. **13**: 147-171 (Feb.) 1923.
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TABLE 1.—*Effect of Therapeutic Doses of Intravenous Calcium Chlorid on the Kidneys of a Normal Dog* *

	Urine †							
Date	Specific Gravity	Reaction	Albumin	Sugar	Sediment	Blood Urea, Mg. for Each 100 C.c.	Blood Urea Nitrogen, Mg. for Each 100 C.c.	Calcium Chlorid, 10 per Cent. Solution Intravenously, C.c.
1/28/22	1.034	Acid	1	0	Phosphates	..	....	...
1/29/22	1.035	Slightly acid	1	0	Phosphates	..	....	...
1/30/22	1.035	Alkaline	1	0	Marked phosphaturia	..	....	...
1/31/22	.....	.....	...	...	.....	20	9.2	...
2/ 2/22	1.040	Slightly acid	2	0	Phosphates	..	....	...
2/ 3/22	.. ..	.....	...	...	Pus 1 (5 cells)	14	6.5	...
2/ 4/22	.....	.....	...	...	0	..	....	2.5
2/ 5/22	1.035	Acid	1	0	0	..	....	2.5
2/ 6/22	1.016	Acid	2	0	0	..	....	2.5
2/ 8/22	1.025	Slightly acid	2	0	0	..	....	...
2/ 9/22	1.040	Slightly acid	2	0	Pus 1 (18 cells)	..	....	...
2/10/22	.....	.....	...	...	.....	26	12.1	2.5
2/11/22	1.016	Acid	1	0	Pus 1 (2 cells)	..	....	2.5
2/12/22	1.022	Acid	1	0	Pus occasionally	..	....	2.5
2/13/22	1.021	Acid	1	0	0	..	....	...
2/14/22	1.028	Neutral	1	0	Pus 1 occasionally, phosphates	..	....	...
2/16/22	.....	.....	...	...	.....	28	13.0	2.5
2/17/22	1.025	Slightly alkaline	1	0	Pus 1 (2 cells) phosphates	..	....	2.5
2/18/22	1.021	Neutral	1	0	Pus 1 occasionally	..	....	2.5
2/19/22	1.026	Acid	1	0	Pus 1 occasionally	..	....	...
2/20/22	1.040	Slightly acid	1	0	Pus 1 (3 cells)	..	....	...
2/21/22	1.025	Acid	1	0	0	..	....	...
2/22/22	.....	.....	...	...	.....	28	13.0	2.5
2/23/22	1.042	Acid	1	0	0	..	....	2.5
2/24/22	1.055	Acid	1	0	Pus 1 (2 cells)	..	....	2.5
2/25/22	1.040	Acid	1	0	Pus 1 occasionally	..	....	...
2/26/22	1.035	Acid	1	0	Pus 1 (4 cells)	..	....	...
2/28/22	1.044	Neutral	0	0	Calcariuria	30	14.0	...
3/ 2/22	1.031	Acid	1	0	Pus 1 occasionally	..	....	2.5
3/ 3/22	1.050	Acid	0	0	0	..	....	2.5
3/ 4/22	1.036	Acid	?	0	Pus 1 (3 cells)	..	.. .	2.5
3/ 6/22	1.042	Acid	1	0	Pus 1 (4 cells)	..	....	...
3/ 9/22	.....	.....	...	...	.....	38	17.7	...
3/10/22	1.061	Acid	1	0	Pus 1 (14 cells)	..	....	...
3/11/22	1.040	Acid	?	0	0	..	....	...
3/24/22	.....	.....	...	...	.....	36	16.8	...
6/27/22	.....	.....	...	...	.....	20	9.2	...

* Dog F 306, 5 c.c. for each 60 kg. of body weight.
† Albumin, sugar, pus and erythrocytes are graded on a basis of 0 to 4.

TABLE 2.—*Effect of Intravenous Calcium Chlorid on the Kidneys of a Jaundiced Dog**

Date	Urine †						Blood Urea, Mg. for Each 100 C.c.	Blood Urea Nitrogen, Mg. for Each 100 C.c.	Calcium Chlorid, 10 per Cent. Solution Intravenously, C.c.	Phenolsulphonephthalein, per Cent.	Remarks
	Specific Gravity	Reaction	Albumin	Sugar	Bile	Sediment					
4/26/22	1.039	Acid	1	0	...	Pus 1 (5 cells), erythrocytes occasionally	..	....	...	..	
4/26/22	1.050	Acid	0	0	...	Pus 1 (5 cells) (catheter)	34	15.8	...	65	
4/27/22	1.036	Acid	1	0	...	Pus 1 occasionally	..	....	...	..	
4/28/22	1.022	Acid	3	0	...	Erythrocytes 4, pus 1 occasionally	..	....	...	..	
4/29/22	1.018	Acid	2	0	...	Erythrocytes and pus 1 occasionally	..	....	...	..	
5/ 1/22	1.031	Acid	2	0	...	Pus 2 (50 cells)	..	....	...	..	
5/ 3/22	.....	.....	...	...	...	.....	14	6.5	...	..	Weight 13.3 kg.
5/ 4/22	.....	.....	...	...	...	.....	..	....	...	..	Resection of common bile duct
5/ 4/22	1.009	Slightly acid	2	0	0	.....	..	....	...	..	
5/ 5/22	1.008	Neutral	1	0	0	Pus 1 occasionally	..	....	...	..	
5/ 6/22	1.007	Acid	1	0	0	Pus 1 (2 cells)	..	....	...	..	
5/ 7/22	1.015	Alkaline	?	0	1	0	..	....	...	..	
5/ 8/22	1.004	Acid	?	0	0	Pus 1 occasionally	..	....	...	..	
5/ 9/22	1.020	Acid	2	0	2	0	..	....	...	..	
5/10/22	1.011	Slightly alkaline	1	0	2	0	..	....	...	..	
5/11/22	1.009	Neutral	2	0	3	0	22	10.2	1.5	..	Weight 12.5 kg.
5/12/22	1.009	Neutral	2	0	2	Pus 1 (5 cells)	..	....	1.5	..	
5/13/22	.....	.....	...	...	...	.....	..	....	1.5	..	
5/14/22	1.009	Acid	2	0	2	Pus 1 (20 cells)	..	....	...	..	
5/15/22	1.005	Slightly acid	2	0	2	Erythrocytes 1, pus 1 (15 cells)	..	....	...	..	
5/16/22	1.004	Slightly acid	2	0	2	Erythrocytes 2, pus 2	..	....	...	..	
5/17/22	1.005	Neutral	2	0	2	Pus 1 (15 cells) (catheter)	22	10.2	1.5	..	
5/18/22	1.009	Slightly alkaline	1	0	0	0	..	....	1.5	..	
5/19/22	1.009	Slightly acid	2	0	2	Erythrocytes 1, pus 1 (6 cells)	..	....	1.5	..	
5/20/22	1.005	Neutral	1	0	2	Pus 1 (12 cells)	..	....	...	..	
5/22/22	1.009	Neutral	3	0	1	Pus 1 (3 cells)	..	....	...	..	
5/23/22	.....	.....	...	...	...	.....	..	....	...	..	Dog died ‡

* Dog F 388. 8 mg. for each kilogram of body weight.
† Albumin, sugar, bile, pus and erythrocytes are graded on a basis of 0 to 4.
‡ The dog had appeared in good condition twelve hours before. At necropsy the weight was 10.4 kg. The general state of nourishment was good. Jaundice was 3. The heart valves and vessels were yellow; otherwise the examination was negative; the weight was 98 gm. The lungs were hypostatic and congested on the right side. The gallbladder was lax, greatly dilated and now partially collapsed; the proximal resected bile duct was ruptured. Six hundred cubic centimeters of bile stained fluid was present in peritoneal cavity. The right kidney weighed 60 gm., the left 80 gm.

TABLE 3.—*Effect of Intravenous Calcium Chlorid on the Kidneys of a Jaundiced Dog**

Date	Urine †						Blood Urea, Mg. for Each 100 C.c.	Blood Urea Nitrogen, Mg. for Each 100 C.c.	Phenolsulphonephthalein, per Cent.	Weight, Kg.	Calcium Chlorid, 10 per Cent. Solution Intravenously, C.c.	Remarks
	Specific Gravity	Reaction	Albumin	Sugar	Bile	Sediment						
5/29/22	1.017	Acid	2	0	0	Crystals	..	....	..	....	...	
5/30/22	1.026	Alkaline	1	0	...	.....	..	....	..	....	...	
5/31/22	‡	Acid	1	0	...	Erythrocytes occasionally, pus 1 (2 cells)	22	10.2	70	14.5	...	
6/ 5/22	1.010	Alkaline	1	0	0	.....	..	....	..	....	...	Resection 1 cm. common bile duct
6/ 6/22	1.011	Neutral	1	0	0	Pus 1 (2 cells)	..	....	..	....	...	
6/ 7/22	1.004	Alkaline	1	0	0	.....	..	....	..	....	...	
6/ 8/22	1.038	Acid	1	0	0	.....	..	....	..	....	...	
6/ 9/22	1.013	Acid	1	0	0	.....	..	....	..	....	...	
6/10/22	1.003	Acid	1	0	0	Erythrocytes 1	..	....	..	....	...	
6/14/22	1.013	Acid	1	0	3	Erythrocytes 1	..	....	..	....	...	
6/15/22	.....	.....	...	...	2	.....	22	10.2	35 ? some lost	....	...	
6/16/22	.....	.....	...	...	...	.....	..	....	..	13.3	3.3	Three times normal amount of calcium by weight
6/17/22	1.011	Acid	1	0	2	.....	..	....	..	....	3.3	
6/18/22	.....	.....	...	...	...	.....	..	....	..	....	3.3	
6/19/22	1.021	Acid	?	0	1	.....	..	....	..	....	...	
6/20/22	1.008	Neutral	3	0	3	Erythrocytes 1, pus 1 (3 cells)	10	4.6	..	....	3.3	Bleeding from wound in neck
6/21/22	.....	.....	...	...	...	.....	..	....	..	....	3.3	
6/22/22	‡	Neutral	3	0	3	Pus 3	10	4.6	65	12.5	3.3	
6/26/22	.....	.....	...	...	...	.....	..	....	..	....	...	Right kidney removed
7/ 5/22	.....	.....	...	...	...	.....	22	10.2	..	....	...	
7/10/22	‡	Neutral	1	0	...	Pus 2 (30 cells)	10	4.6	45	....	...	
7/12/22	.....	.....	...	...	...	.....	..	....	..	12.0	3.0	
7/13/22	.....	.....	...	...	...	.....	..	....	..	....	3.0	
7/14/22	.....	.....	...	...	...	.....	..	....	..	....	3.0	
7/15/22	1.015	Acid	3	0	3	.....	14	6.5	..	....	3.0	Not eating well, milk added to diet
7/18/22	.....	.....	...	...	...	.....	16	7.3	..	....	...	
7/19/22	.....	.....	...	...	...	.....	..	....	..	....	3.0	
7/20/22	.....	.....	...	...	...	.....	..	....	..	....	3.0	
7/21/22	.....	.....	...	...	...	.....	..	....	..	....	3.0	
7/26/22	.....	.....	...	...	...	.....	..	....	..	11.6	3.0	
7/27/22	1.008	Neutral	1	0	3	Pus 1 (4 cells)	10	4.6	..	....	3.0	
7/28/22	.....	.....	...	...	...	.....	..	....	..	....	3.0	
7/29/22	.....	.....	...	...	...	.....	34	15.8	..	....	...	
7/30/22	.....	.....	...	...	...	.....	..	....	..	....	...	Dog died §

* Dog F 516, 24 mg. for each kilogram of body weight.
† Albumin, sugar, bile, pus and erythrocytes are graded on a basis of 0 to 4.
‡ Catheterized specimen.
§ Dog was found dead in cage, having been seen alive three hours before. Considerable bile-stained fluid was present in the abdominal cavity. The liver was displaced to the left by a tense gallbladder, about 10 cm. in diameter. No point of rupture was found. There was general marked jaundice. This animal received an average dose of 25 mg. for each kilogram of body weight, or three times the therapeutic dose.

rately the effect of intravenous injections of calcium chlorid in various amounts on the kidney, it must be borne in mind that the functions of secretion and filtration of the kidney are concerned as much as the structural changes in the morphology of the renal cell. As indexes of secretion and filtration, urinalyses were made almost daily during the course of the experiments. Also, estimations were made on all dogs of the blood urea, and on many of the excretion of phenolsulphonephthalein. Histologic studies were made of specimens removed from the kidneys of the seven dogs, and of specimens from four others in which we were studying the effect of intravenous injections of calcium chlorid on the mechanism of the heart.

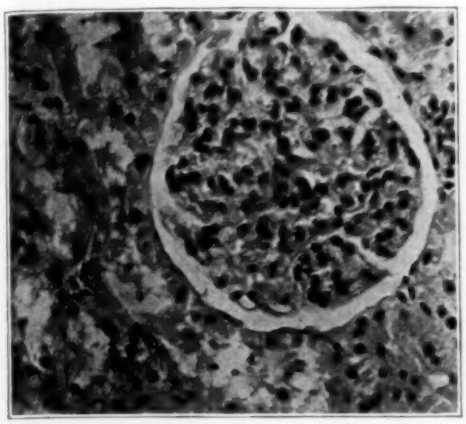

Fig. 3.—Renal glomerulus (× 200).

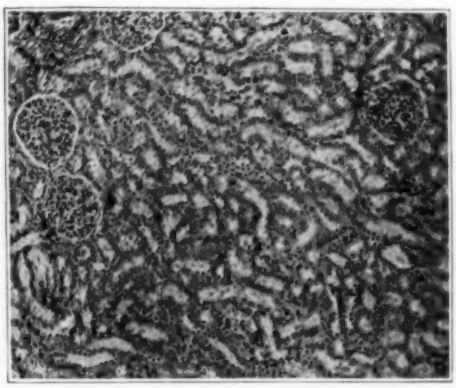

Fig. 4.—Section of kidney (× 60).

The amount of 10 per cent. calcium chlorid solution injected varied from 1.5 c.c. (8 mg. for each kilogram of body weight) to the lethal doses of 280 mg. for each kilogram of body weight in the normal dogs, and 380 mg. for each kilogram in the jaundiced dogs. Most of the dogs were injected repeatedly with amounts varying from 8 mg. for each kilogram of body weight to 80 mg. for each kilogram. One dog (Dog F 306) was given fifteen injections of 2.5 c.c. of a 10 per cent. solution intravenously, each injection being one-half the total amount, and four times the amount for each kilogram of body weight given to our jaundiced patients. The injections were given in five courses of three days each, with an interval of from three to four days between courses, the courses lasting two months. Blood urea estimations and urinalyses were made almost daily. The results of this experiment are shown in Table 1. No changes occurred in the urine of the animals. Three months after the discontinuance, and five months after the beginning of the calcium chlorid injections, the blood urea was normal, being 20 mg. for each 100 c.c.

The results of the progressively increasing, daily injections of calcium chlorid are illustrated in the experiment on a normal dog (Dog G 267, Fig. 1), which, for nine days was given increasing multiples of the therapeutic dose given to our jaundiced patients (8 mg. for each kilogram of body weight), beginning with 8 mg. for each kilogram of body weight, and increasing up to 80 mg. on the tenth day.

Similar injections were given to the dogs with obstructive jaundice. One dog (Dog F 388) was given six injections of the therapeutic dose of 8 mg. for each kilogram of body weight in two courses of three days each, with an interval of four days between. Here, too, there was little change in the functions of filtration and secretion of the kidneys, as indexed by urinalysis and blood urea estimations (Table 2).

In order to ascertain whether renal function, as evidenced by urinalysis, phenolsulphonephthalein excretion and blood urea estimations, was disturbed by larger doses than that given in our therapeutic courses, we gave a jaundiced dog (Dog F 516) three times the normal amount of calcium chlorid for each kilogram of body weight given in the therapeutic dose, that is, nine injections of 24 mg. for each kilogram of body weight, each in three courses with an interval of from one to three days between. Again there was no change in urine and blood urea values as compared with those made prior to the injections (Table 3). After the second course of injections, the right kidney was removed and examined microscopically. Little, if any, change in the structure was manifest (Figs. 2, 3 and 4).

From the seven animals used in this study, and from those used in the course of our experimental work on the effect of intravenous injections of calcium chlorid on the heart, the kidneys were removed at necropsy, and sectioned. With the exception of the usual changes in the kidneys accompanying obstructive jaundice, no other structural pathologic changes were found. Nor were we able to produce deposits of calcium in the kidneys by doses ranging from 8 mg. for each kilogram of body weight to the lethal dose of 280 mg. for each kilogram of body weight in normal dogs, and of 380 mg.

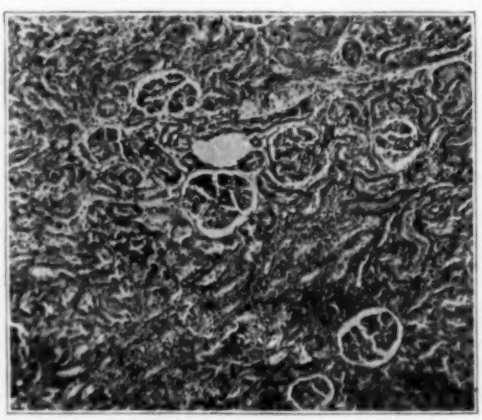

Fig 5.—Section of kidney of jaundiced dog (× 75).

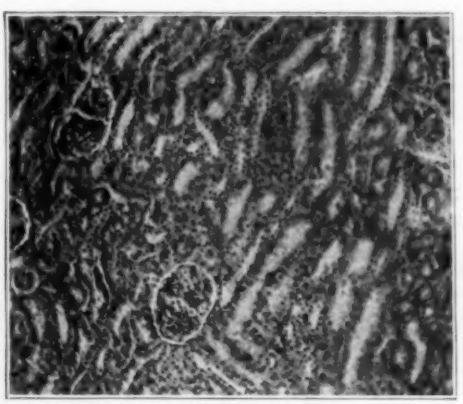

Fig. 6.—Section of kidney of normal dog (× 75).

for each kilogram of body weight in jaundiced dogs. It was not possible to demonstrate a deleterious effect on the kidneys of any of these dogs, either clinically or pathologically (Figs. 5 and 6).

THE TREATMENT OF CEREBRAL SPASTIC PARALYSIS

WITH SPECIAL REFERENCE TO THE STOFFEL OPERATION *

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Cerebral spastic paralysis is a condition characterized by loss of muscle control, incoordination, increased reflexes, impaired mentality and deformities. This condition is of more common occurrence than is generally supposed; Sharp and MacClaire report [1] that, in 13 per cent. of 100 consecutive deliveries, cerebral hemorrhage with spastic symptoms was present. That this is an extremely distressing condition will be conceded, nor will it be denied that any treatment or combination of treatments offering a hope of relief or improvement is worthy of trial.

Fig. 1.—The characteristic contracture in the upper extremity. Left, before operation; the hand is held pronated, wrist and fingers flexed and thumb adducted. Right, after Stoffel's operation on branches of the median to pronator radii teres and flexor sublimus and branches of the ulnar to flexor carpi ulnaris and intrinsic muscles of hand; voluntary supination of forearm, extensors of fingers and abduction of thumb are shown.

This article is based on the study of ninety-two cases seen in the last three years in private practice and in the out-patient service. Of these ninety-two patients, thirty-nine had Stoffel operations performed on one or more nerves.

It is not my intention to enter into a lengthy discussion of the etiology, pathology and symptomatology of this condition, as this presentation mainly has to do with treatment. Still, a statement of the known facts in regard to these points seems necessary if a clear understanding of the object of treatment is to be obtained.

ETIOLOGY

The causes contributing to this condition may be classified as:

A. Intra-uterine.
   1. Congenital defects of the cerebral cortex or pyramidal tracts.
   2. Syphilis.
   3. Intra-uterine injury.

B. Intracranial hemorrhage occurring during birth. This hemorrhage is usually of veinous origin, coming from the veins overlying the cerebral cortex, and is caused by trauma produced by:
   1. Forceps (usually high forceps); this is probably less common than is generally supposed.
   2. Protracted, difficult labor. This, by increasing intracranial pressure and causing asphyxia of the child, brings about venous stasis, with rupture of the delicate vessels overlying the cortex, and the formation of a clot.[2]
   3. Wrapping of the cord about the neck. This acts in the same way as prolonged labor, causing congestion and hemorrhage.
   4. Hemorrhagic disease of the new-born; this is a possible cause of hemorrhage and clot formation, but Sharp and MacClaire think it is not important.

C. Condition occurring after birth.
   1. Meningeal hemorrhage, embolus, thrombosis due to syphilis, etc.
   2. Meningitis.
   3. Hydrocephalis.

PATHOLOGY

The pathology is that of cerebral hemorrhage, with the formation of a clot and the destruction of cerebral structure, either on the surface of the brain or within it. The result of such destruction, if it occurs on the surface, is the obliteration of one or more cortical centers; if it occurs within the brain, interference with the tracts leading from the cortex to the spinal gray matter.

SYMPTOMATOLOGY

The cardinal symptoms are muscle rigidity, loss of muscle control, which is usually worse when movement is attempted, increased reflexes, contractures and retarded mental development. Paralysis plays a very unimportant part.

The spasticity may be in the form of a monaplegia, hemaplegia, paraplegia or diplegia. The loss of muscle control expresses itself in inability to originate or to carry out definite movements. The power to flex and to extend may be present, but this power cannot be called into action by the will of the individual. Often, when attempts are made to carry out a movement, perverse or purposeless actions result. In some cases, the loss of muscle control takes the form of clonic contractions or of athetoid movements affecting the entire body.

Contractures are the result of muscle unbalance due to the loss of muscle control, and are brought about by the stronger muscles overcoming the weaker; hence they are of the flexion-adduction type. In the upper extremity, the characteristic contracture is flexion of the elbow, wrist and fingers, pronation of the hand and strong adduction of the whole extremity (Fig. 1, left). In the lower extremity, the usual deformity is flexion of the hips and knees, plantar flexion of the foot and strong adduction of the thighs. The person walks on tip toes, with the hips and knees bent, and with the legs drawn together or even crossed, in the scissors gait (Fig. 2).

The mentality of these patients varies from normal to complete imbecility. In most of them, however, we find a retarded mental development, due in part to the cerebral insult and in part to the restricted life these children lead, with its lack of educational opportunities gained from association with other children. The disposition of these children also varies considerably; some are normal, some are too placid and content, while others are irritable, obstinate and destructive.

* Read before the Section on Orthopedic Surgery at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Sharp, W., and MacClaire, A. S.: Surg., Gynec. & Obst. **38**: 200-206 (Feb.) 1924.

2. Sharp, William: Intracranial Hemorrhage in the New-Born, J. A. M. A. **81**: 620 (Aug. 25) 1923.

TREATMENT

While it is intended that this article will deal mainly with treatment from the point of view of the Stoffel operation, still, it is felt that it would be pertinent to consider briefly the other methods used.

Treatment may be divided into three phases: (1) immediately after birth; (2) during the first three or four years following birth; and (3) treatment of what might be called the chronic or final stage.

Fig. 2.—The usual deformity in the lower extremities: thighs strongly adducted, knees flexed, and contractures of adductor and hamstring muscles.

The treatment of this condition in the earliest stage, that is, in the stage occurring immediately after delivery, does not come within the province of the orthopedic surgeon. Therefore, I have no personal experience to give. However, the recommendation of Sharp and MacClaire[1] that every new-born child showing symptoms of cerebral irritation or increased intracranial pressure should be subjected to lumbar puncture, and that if a bloody cerebral spinal fluid is found repeated punctures should be made, seems rational. If, by this method, we can prevent coagulation, draw off some of the hemorrhage and so reduce it in amount, we would lessen the extent of the lesion, and either prevent or reduce to a minimum the permanent impairment.

Treatment during the second interval, that is, during the first three or four years of the child's life, is almost entirely a matter of assisting the child to do what it can for itself. This includes daily stretching to prevent contractures, teaching the child to sit up, stand and walk; in fact, at this time, anything that will inculcate in the child the desire to do anything for itself is of value. Later, as these patients develop, effort should be made by the use of games and toys, such as peg boards or blocks, to train them in muscle control, especially in the control of the muscles of the hands. It should always be remembered that, in most of these cases, there is a spontaneous improvement; this should be watched for, and advantage taken of it in every way.

In patients treated during the first years of life, some very interesting results have been obtained by the administration of pituitary gland extract in large doses (up to 15 grains [1 gm.] a day), sometimes combined with smaller doses of thyroid extract (Holt). This therapy is based on the theory that, in certain cases, the pituitary gland is involved in the hemorrhage and its function interfered with. Patients in whom results have been obtained are those with marked mental impairment, when the child apparently possessed no intelligence and no ability to make any physical effort. The impression obtained at the first examination is that nothing can be done—that the child is a hopeless imbecile. The improvement made in these cases by the use of the pituitary gland extract, particularly if it is given during the first year, has been sufficiently encouraging to make us feel that it should be tried in such cases.

The treatment of patients in the third stage of this condition, that is, the stage occurring after the child has reached the age of 3 or 4 years, is entirely a matter of muscle education. Our aim is to restore muscle control, for it is only through the ability to control muscle action that function becomes possible. However, in order that muscles may be educated, it is necessary that they become capable of action; therefore, if by reason of muscle unbalance and consequent contractures we have groups of muscles that are incapable of acting, such muscle unbalance must be overcome and these contractures corrected before education is possible. It follows, then, that in the treatment of this stage, along with muscle training, must go such operative measures as are necessary to restore the capacity for action to the involved muscle groups. These operative measures are (1) tenotomy, (2) tendon transplantation and (3) the Stoffel operation.

Before considering any of these operative procedures, it should be stated that the child's mentality must be given careful study. I do not feel that low grade idiots are fit subjects for any operative treatment. On the other hand, no child who shows even a fair grade of intelligence should be denied an opportunity of being benefited. It is often surprising to see the improvement made in apparently unfavorable cases when the ability to stand and walk, even if such ability is limited, is given them.

Much has already been contributed to the literature bearing on tenotomy and tendon transplantation, and it is not my intention to discuss these operations, except as they are done in connection with the Stoffel operation. Therefore, this procedure will be considered at once.

Spastic contractures are caused by some injury to the cerebral cortex or to the cortical spinal conduits, of which the pyramidal tracts are the most important. The result of such an injury, according to Foerster, is, first, the interference with impulses of volition from the cortex to the spinal gray matter and, second, the interference with or obliteration of the inhibitory impulses, through which reflex activity is held under control, from the cortex to the spinal gray matter. Under such conditions, it follows that the ability to originate movements is interfered with, and that the sensory stimuli constantly streaming into the spinal gray matter, being no longer subdued by the inhibitory impulses from the cortex, pour out their full strength on the muscles, and spasticity with contractures results. Stoffel based his procedure on the theory that partly dividing the nerve supply to a muscle or a group of muscles would have two effects: first, the cutting down of the number of afferent and efferent impulses between the muscle and the spinal cord; second, the paralyzing of parts of these muscles, leaving the unparalyzed parts still spastic. Such spasticity, however, would be without effect, as the weakened muscle would no longer be strong enough

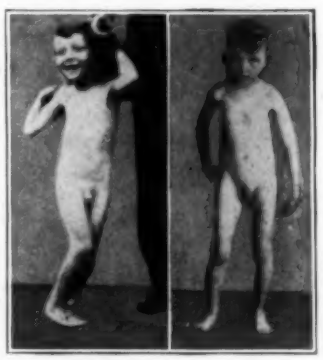


Fig 3. — Adductor contracture with scissors gait: left, before operation; right, one year after Stoffel's operation on the obturator nerves.

to overcome the antagonist, and thus the contractures would disappear. Once the contractures had been removed satisfactorily, control could be obtained by careful muscle training.

As described by Stoffel,[3] the operation consists in exposing a main nerve trunk, such as the sciatic or median, and, after the isolation of the nerve bundles that supply the group of muscles one wishes to weaken, in removing a section of these bundles, thus sufficiently weakening the muscles to establish a fair balance with the antagonistic muscle group. One should remember that these antagonistic muscles, normally weaker, are still more weakened by overstretching and lack of use. The procedure to be described here has been slightly different in that, in the cases considered, with the exception of cases requiring operation on the obturator nerve for adductor spasm, the nerves to the muscles groups have been isolated individually, an electrode with weakened current being used for isolating purposes. After the nerve is isolated, one half of the nerve supply to each muscle is divided, and the test made again. If action is still strong, a little more is taken, thus reducing the power of the muscle, as far as it seems necessary, without entirely destroying the nerve supply to any muscle or group of muscles.

Fig 4.—Contractures of the hamstrings and Achilles tendon: left, before operation; right, three months after Stoffel's operation on internal hamstrings and soleus.

The procedure in the case of the upper extremity has been confined to sectioning in this way the branch of the median to the pronator radii teres, the flexors of the wrists and fingers and, in three cases, those to the intrinsic muscles of the hand, enervated by the deep branch of the ulnar nerve (Fig. 1).

In the lower extremities, I divide both the anterior and the posterior ramus of the obturator for adductor spasm. There is always enough enervation to the adductor group from the sciatic to make this quite safe (Fig. 3).

In contracture of the knees, I divide rather freely the nerve supply to the internal hamstrings, leaving the biceps intact. I have seen back knee result when too free division has been made of the nerve supply to both the internal and external hamstrings. In my experience it is usually the internal hamstrings that are overactive, and a Stoffel operation on this group is sufficient. However, in severe cases, it is sometimes necessary to weaken the biceps as well.

In contractures of the Achilles tendon, I divide the nerve supply to the soleus; only, in severe cases, is that of the gastrocnemius divided, and then only that to one head. Here again, I have seen back knee and calcaneous following too great a weakening of the Achilles tendon, and believe it much safer to use the procedure stated (Fig. 4).

In certain cases, I do tendotomies as well as the Stoffel operation. Where contractures have persisted for years, there is shortening of the contracted muscles, in spite of the statement that shortening does not occur. The chief offenders in this respect are the adductors and the heel tendons. Therefore, these two groups are tendotomized whenever I feel that there is a definite shortening present, which we cannot expect to overcome with a Stoffel operation. This is done, however, only as an adjunct to the operation and only for the purpose of correcting persistent contractures (Fig. 5).

Contrary to the procedure of Gill, I always keep the extremities in plaster in the corrected position for about two weeks. At the end of this time, movement and exercise are begun, and the child is encouraged to get up as soon as possible. The casts are worn at night for several weeks after this, and then discarded entirely. It should be stated that careful supervision of the exercises given is essential, and that all such exercises should be taken under the direction of some one skilled in this educational work. This necessitates keeping the child under supervision for a number of weeks after the operation. I find, in most cases, that it is possible to secure the cooperation of the mother, and, from the start, she is asked to be present and is instructed in giving exercises to the child. In this way, it is possible to dismiss most of the patients after several weeks of instruction, care being taken to have them return from time to time for a checking up and for instructions in regard to any changes in the treatment that may be indicated. Braces are seldom used as a part of the after-treatment.

When doing the Stoffel operation, it is my purpose to underdo rather than overdo in the reducing of muscle power. It is always possible to go back and do a little more, but it is impossible to regain what is destroyed. In regard to the time of operation, I have considered three and a half years the low limit, and have determined the upper limit chiefly by the general condition and mentality of the patient.

Of the thirty-nine patients operated on, the adductors were weakened thirty-five times; the internal hamstrings, twenty-one times; the soleus, twenty-one times; soleus and gastrocnemius, six times; pronator radii teres, five times; flexors of wrist and fingers, six times, and the intrinsic muscles of the hand, three times.

The results were excellent in ten cases, or 25.5 per cent.; good in thirteen cases, or 33⅓ per cent., and fair in fourteen cases, or 35 per cent.; there was no change in two cases, or 5 per cent. None of the patients were worse as a result of treatment.

Fig. 5.—Contractures of adductors, hamstrings and Achilles tendons: left, before operation; right, one year after Stoffel's operation on the adductors, internal hamstrings and soleus, combined with tenotomies of these muscles and several others.

CONCLUSIONS

As the result of my experience with the Stoffel operation, I am convinced that it does reduce spasticity, relieve contractures and bring about local improvement. Moreover, I have noticed that, with the reduction in the spasticity locally, there is almost invariably a definite improvement in the general condition. The spasticity in other parts lessens, the speech becomes better, and the patient is usually able to perform acts that

3. Stoffel, A.: Treatment of Spastic Contractures by Neuroplasty, Am. T. Orthop. Surg. **10**: 611 (May) 1913.

before were impossible. This is probably due to the quieting effect of the operation on the complex reflexes through which the correlation of activities in widely separated parts of the body takes place.

I feel, therefore, that, in the treatment of spastic paralysis, the Stoffel operation has a very definite place, and, in my hands, it has proved the most satisfactory procedure for reducing spasticity and overcoming contractures.

ABSTRACT OF DISCUSSION

DR. A. BRUCE GILL, Philadelphia: The treatment of spastic paralysis has not yet been perfected because we probably do not, as yet, fully understand the nature of this condition. Further study by anatomists, physiologists and neurologists is required. As most of you know, certain young Australian anatomists and surgeons have proposed a new theory as to the causation and the means of correction of spasticity. The accepted theory of the production of spasticity has been that the peripheral or sympathetic arc has been cut off from all depressor factors maintained through cerebral control. The continual stream of sensory impulses which pour into the spinal centers overexcites the motor cells and causes them to send out and return a constant stream of impulses to the muscles. This produces overexcitation of muscle contraction. Various forms of treatment have been based on the cutting of the peripheral arc at various points. The oldest form of treatment was tenotomy which cuts the arc at the muscle itself. Foerster cuts the sensory nerves just before they enter the spinal cord. Stoffel resects a certain portion of the motor nerves to muscles. Royle and Hunter divide or avulse the sympathetic nerves which have to do with the innervation of the spastic member. It is stated that their method has resulted in marked improvement in patients operated on. Until experience shall prove or disprove the value of this last proposed method of operation I think we may rely largely on the Stoffel operation for improvement of this condition. As Dr. Dickson has pointed out, the Stoffel operation relieves contracture if it is not an anatomic one which requires tenotomy or tendon lengthening, it lessens the spasticity, and it secures an approximate balance between antagonistic groups of muscles.

DR. R. O. RITTER, Chicago: The spastic paralysis cases present the most difficult problems for solution. The results here shown of the Stoffel operation are remarkable. We have not used it to any extent in our clinic, probably simply because of lack of knowledge of the technic; but, after seeing these pictures of the results, I think it is well worth trying it. These are discouraging cases to treat by any of our present methods, and any procedure that offers any benefit to them is well worth a good trial.

DR. J. F. MCDONALD, Omaha: Spasticity in these cases of upper motor neuron lesions is the most important causative factor in the attendant deformities and disabilities, because the increased muscular resistance prevents adequate use of what remains intact of the central volitional mechanism. Tone in striated muscle arises mainly reflexly in the nerve endings of muscle, tendon and joint. The impulses reach the cord through the dorsal spinal roots. The outgoing (efferent) limb of the arc has been in controversy, some authorities thinking it composed of lower motor neurons, and others believing it made up of sympathetic nerves. All agree that the two efferent systems connect cord and muscle. The point in controversy has been as to which of the two conveys the tone-producing impulses. Until recently, the weight of opinion has favored the volitional pathway as the efferent limb of the arc. Lately Hunter, Royle and others have demonstrated that the sympathetic forms the efferent limb of this arc. They sectioned the gray rami of the sympathetic, first in spastic experimental animals, and later in spastic human beings. They obtained remarkable release from rigidity and deformity, and progressive improvement in function. Physiologically, their procedure seems more rational than the older types of operation. The operation that removes rigidity by sectioning the dorsal roots does harm as well, because cutting all superficial and deep sensory fibers leaves the segment wholly anesthetic and ataxic. The Stoffel operation gives considerable improvement. Still, it involves definite physiologic objections. Like the Hunter-Royle operation, it cuts some sympathetic fibers (coursing in the nerve trunk), but it also sections several other classes of fibers in the nerve, viz., superficial and deep sensory and lower motor neurons (volitional), rendering the part proportionally anesthetic, ataxic and paralytic (flaccid type). The Royle-Hunter operation does not add partial flaccid paralysis by cutting off lower motor neurons, and it does not render the segment partially anesthetic and ataxic by cutting off part of the sensory nerves. On the contrary, by sectioning only the sympathetics, it gives release from spasticity and deformity, and progressive functional improvement through easier use of the freed muscles. It leaves entirely intact all the sensory neurons, superficial and deep, as well as all the volitional (lower motor) neurons.

DR. J. S. SPEED, Memphis, Tenn.: There is a marked improvement in the general health and mental condition of these children after they have been subjected to a Stoffel operation. Because of the improved muscle balance, a great deal of the cerebral irritation is cut down. Whereas their muscles did three or four days work in one before the operation, they probably do one and one-half after the operation. The application of a plaster cast following operation is of great benefit both in stretching contracted muscles and in putting the body at rest. I have tried a number of cases with and without casts, and believe the results to have been much better with the cast. After operating on a median nerve, we are often left with an intermittent jerking or a fixed contracture of the flexor carpi ulnaris. This can be prevented by section of the branches of the ulnar nerve to this muscle just below the internal condyle of the humerus. It may be done at the original operation, if this complication seems probable, or at a secondary operation under local anesthesia, if found necessary. The same applies to troublesome adduction contractures of the thumb, which can be relieved by section of the deep branches of the ulnar nerve to these muscles in the hand. In a number of these cases in which extensive nerve resections have been done, I have noticed a definite atrophy of the muscles supplied by these nerves. Perhaps too much of the nerve supply was cut. However, I have never seen any of these muscles paralyzed so completely that stimulation above the point of resection did not produce some contraction, or that functionally there was not some power. There are probably small communicating supplies from other branches. In the adult cases, many of the deformities have become fixed and structural changes have occurred in the bones with permanent contractures of the tendons. It is obvious that a nerve resection cannot correct such deformities, and we must combine bone and tendon operations with the Stoffel. I noticed in one of Dr. Dickson's cases that there was still a fixed equinus and the patient had to swing his knee to make his toes clear. An arthrodesis in this type of case would be of benefit. I believe that the work of Royle and Hunter is an advance, but the technical difficulties of the operation make it difficult for general application.

DR. G. I. BAUMAN, Cleveland: We have employed the Stoffel operation in fifty or more cases, and I can subscribe to everything Dr. Dickson has said about it. There is one question I should like to ask him in regard to technic; that is about the obturators, whether he resects externally where they enter the adductor muscles or above Poupart's ligament? We have not had much experience with the Stoffel operation in the arm. It seems to me that the difficulties are much greater in the arm than in the leg. If there is a spasticity of an isolated muscle, such as the pronator radii teres, or one of the pectorals, it is perfectly feasible to do a Stoffel operation. If it affects many of the muscles of the arm, the difficulties are greater; and I think that in the arm much better results can be obtained by tendon transplanting, such as was worked out for musculospiral paralysis after the war.

Dr. Frank D. Dickson, Kansas City, Mo.: Our technic is the use of casts, put on for two weeks; then exercises are started; the casts are worn at night and part of the day for three or four weeks, and then the patients are let go entirely. We rarely use braces for after-treatment. As far as stabilization goes, Dr. Speed is right. As to toe drop in this case, the boy has a permanent contracture of the knee due to bony deformity. This boy will have to have an osteotomy done so that the knee can be extended fully. As far as the sympathetic idea is concerned, I am as much interested in it as anybody is. I talked with Armitage Whitman, who helped do one, and from difficulties of operating I do not think it will be very satisfactory. Few will be able to do it satisfactorily. It is like the Foerster operation—the difficulties are so great that it will be limited to a few skilful and able men, and as the usefulness of any operation is based on its feasibility in the hands of the ordinary surgeon, I do not know just how useful the procedure will be. As to the question about the obturator nerve, I divide both the anterior rami of the obturators just above the bifurcation. In some deformities of the upper extremity, tendon transplantations are better, but in these extremely deforming conditions due to the involvement of the intrinsic muscles of the hand and certainly in contracture of the pronator radii teres I think the Stoffel operation gives results that could not possibly be obtained from tendon operations.

A ROENTGENOGRAPHIC STUDY OF THE INFANT CHEST AS SEEN AT BIRTH *

W. W. WASSON, M.D.
DENVER

In a paper presented before the Radiological Society of North America, in December, 1922, I outlined some studies we were making concerning the normal chest. It was our conception that the pulmonary structures undergo certain changes from birth to old age as a result of environment and the normal fibrosis that takes place in body tissue from age, and that these changes, when viewed as a whole, must be considered as one great normal process. Since these changes are progressive, accumulative and never ending, we gave them the

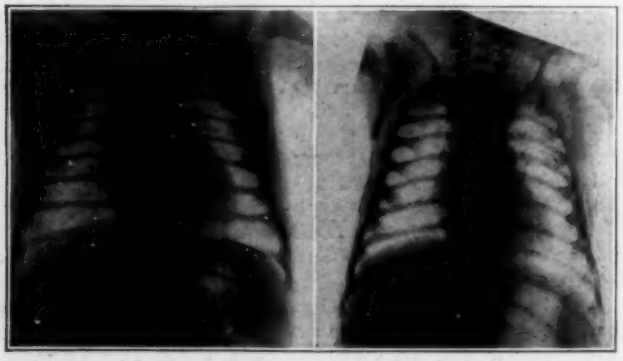


Fig. 1.—*A*, infant three hours after birth; *B*, same infant twenty-four hours after birth; lung fully expanded; bronchi may be traced to the periphery and nodes seen about the hila.

name "the progression of the chest." That is, there is a fibrous change which takes place in all tissue as a result of age, and which must be considered normal. Likewise, there are certain changes or deposits which take place in the lung tissue as a result of infection or dust irritation, and, if the lung masters this infection or irritation, it again becomes a mere incident in that person's life. In looking at an adult's chest, we see the evidence of these various events in a person's history, but as they occur, to a greater or less extent, to every one and are producing no disturbance, they must be considered as normal changes.

In order that we might have a clear conception of this progression of the chest, we have been following persons from infancy on through adult life, observing the various changes that take place in lung tissue as seen by the roentgenograph. In the beginning, our first pictures of any one person were taken during the first two weeks of life, but it soon became evident that we must go back still further and study the first respirations of the infant and the clearing of the atelectasis. In this paper, then, I wish to give our observations on the early lung changes after the first respiratory acts and as to the appearance of the roentgenogram during the first two weeks of life.

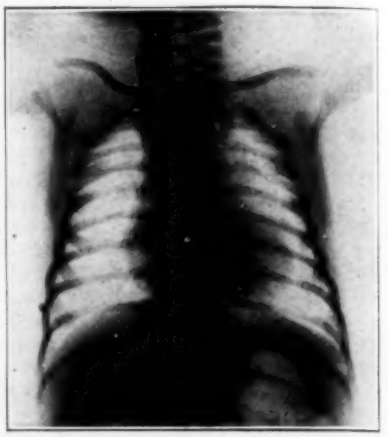


Fig. 2.—Infant five minutes after birth; almost complete expansion of the lung.

With the cooperation of the obstetric staff at St. Anthony's Hospital, Denver, a plan was arranged whereby the new-born child could be roentgenographed immediately on delivery. A bedside unit was placed in the delivery room beside the delivery table. After a little experience, a technic was developed whereby we could get a clear delineation of all the pulmonary structures. The exposure that is one-tenth second was found to be fast enough to stop the motion for this study. All factors of exposure were kept constant, as well as the developing time, in order that we might have no variation in the roentgenogram due to technic. The exposure time was measured by the cycle method, and the focal spot tested as to the proper distance for sharp delineation. The new-born child was then immediately roentgenographed, and records were kept as to the time interval, as to whether the child was crying or breathing, as to whether or not the cord was severed, and of the condition of the mother and child. Successive roentgenograms were then made thereafter in five minutes, ten minutes, fifteen minutes, twenty-four hours and before leaving the hospital. A few stillborn infants also were roentgenographed.

In the stillborn infant without respiration, there was uniform density throughout the chest, obliterating all the pulmonary structure as well as the heart. In other words, there was no evidence of air in either the chest or the abdomen. The attending physician, in some of these cases, attempted resuscitation by the mouth to mouth method for expanding the lungs, and the roentgenogram following these attempts showed air, not only in a portion of the lung, with more or less expansion, but also in the abdomen.

The air in the abdomen, in some cases, outlined the stomach, small intestines and colon. The shape of the

* This work is being made possible through the aid of the Selmene Winter Foundation.
* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

chest in the stillborn infant was that typical of the new-born, with the uniform density filling the entire thorax, the ribs forming an acute angle with the spine. This picture is also typical of the new-born infant before breathing; that is, there is roentgenographically no evidence of air or gases in either chest or intestinal tract. Then, with respiration, air is found to enter the lungs,

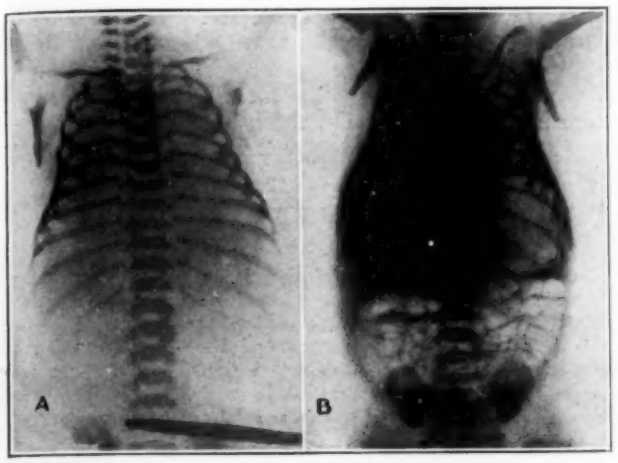


Fig. 3.—*A*, stillborn infant; no air in thorax or abdomen with typically shaped chest. *B*, stillborn infant in which resuscitation was attempted by the mouth to mouth method; partial filling of lungs with air and complete filling of gastro-intestinal tract.

the stomach and the intestines, with the following results:

With the inrush of air, we immediately began to show on the roentgenogram some evidence of lung structure, with changes in the shape of the chest. In some cases of normal, easy delivery, with the child in good condition, the lungs gave the appearance of full expansion within five minutes after delivery. Again, in similar cases of easy delivery, but especially in those of prolonged, difficult delivery, the expansion of the lung was found to take place slowly, leaving entire lobes atelectatic or with only scattered areas of atelectasis. In either these small atelectatic areas or entire lobes that were involved, a uniform density would be found comparable to that of the stillborn or that of the lung before the act of respiration. Roentgenographically, these densities had not the appearance or distribution of ordinary pathologic processes, though they might simulate the appearance that I have seen in edema of the lung or in an occasional broncho-pneumonia. We called the lung fully expanded when there was air throughout all the parenchyma and no evidence of scattered density suggesting remaining atelectasis. The interval of time for this to take place ranged from five minutes to two weeks, and, in general, compared very closely with the clinical observations described by Pearce and von Reuss. Roentgenographically, the bases seemed to be the last to expand completely, with the lateral borders being probably the first. The anterior borders near the mediastinum seemed to come later, which might have been due to some overlapping of the shadows about the mediastinum. I was unable to observe any particular change in the shape or position of the diaphragm or the heart and its great vessels. There was, however, a very marked change in the shape of the chest due to the change in the angle of the ribs. In full expansion, the rib was at right angles with the spine or, in an anteroposterior position, appeared even to incline upward, as seen by the roentgenograph, with the upper ribs rising and obliterating the slope of the lateral chest wall. The increase in the anteroposterior, transverse and sagittal diameters after expansion, as compared with those before expansion, did not seem to account for a quantity of air sufficient to produce the radical changes in the roentgenogram. In other words, the atelectatic lung, before any respiratory act, would almost fill the interthoracic space of the fully expanded chest. This physiologic problem would seem to need further study. Von Reuss states that the air capacity of the lung is 17 c.c. at the end of the first twenty minutes after birth, and at the end of six hours approximately 36 c.c.

As stated above, the abdomen of the new-born infant, before any act of respiration, has no evidence on the roentgenogram of containing gases or air; but, simultaneously with the appearance of air in the lungs, there is also air showing in the stomach. This is true whether the breathing is normal or artificial, and the quantity will increase until the stomach and upper intestinal tract are well distended. A little later, the air will pass along to fill the colon. Coming simultaneously with the respiratory act, the shadows seen could hardly be anything but air.

Let us now inspect more closely the roentgenogram of the fully expanded lung within the first two weeks after birth. The ribs, forming the chest wall, have the position described, which gives the thorax a distinctly cylindric appearance, with a slight but gradual slope from apex to base. The diaphragms closing this cylinder at its base may be decidedly dome-shaped or only

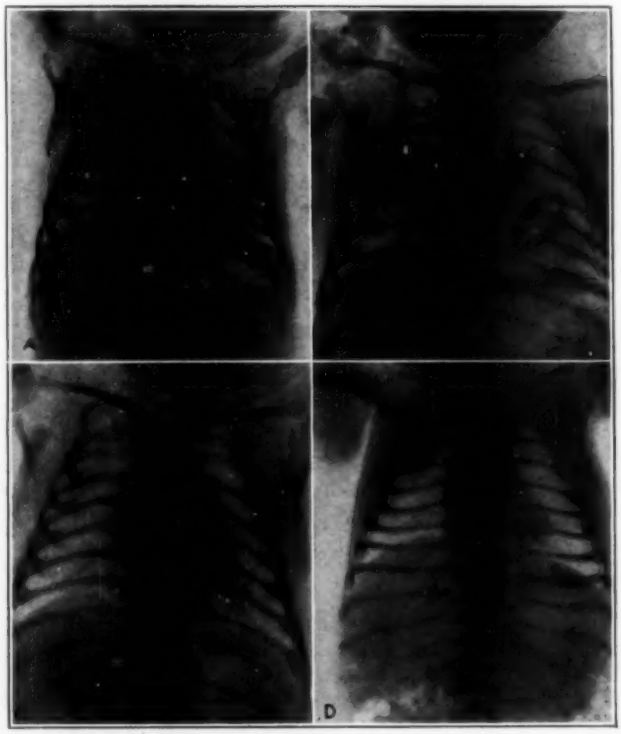


Fig. 4.—Series of roentgenograms of an infant showing gradual expansion of lungs and typical changes in thoracic wall; *A*, ten minutes after birth; *B*, fifteen minutes; *C*, twenty-four hours; *D*, ten days. Nodes about left hilum should be noted.

partially so. The right is slightly higher than the left. The heart and mediastinum, at first sight, are not greatly different from those in the adult, but the left ventricle appears more prominent in the infant and the great vessels less so. The trachea is seen to lie in the

midline, bifurcating, as described by Skavlem, about the third thoracic vertebra, entering a well defined hilum on either side. In either hilum may be quite distinctly seen small columns of air extending out into either lung surrounded by narrow linear markings of considerable density. The hila have a fairly uniform density without evidence of irregularities in densities which might be considered as glandular tissue, and are reasonably wide in comparison to the size of the chest. The linear markings with their columns of air may be traced well to the periphery, and are quite prominent, especially those directly upward toward the apex and those downward toward the bases. They are, on the whole, of

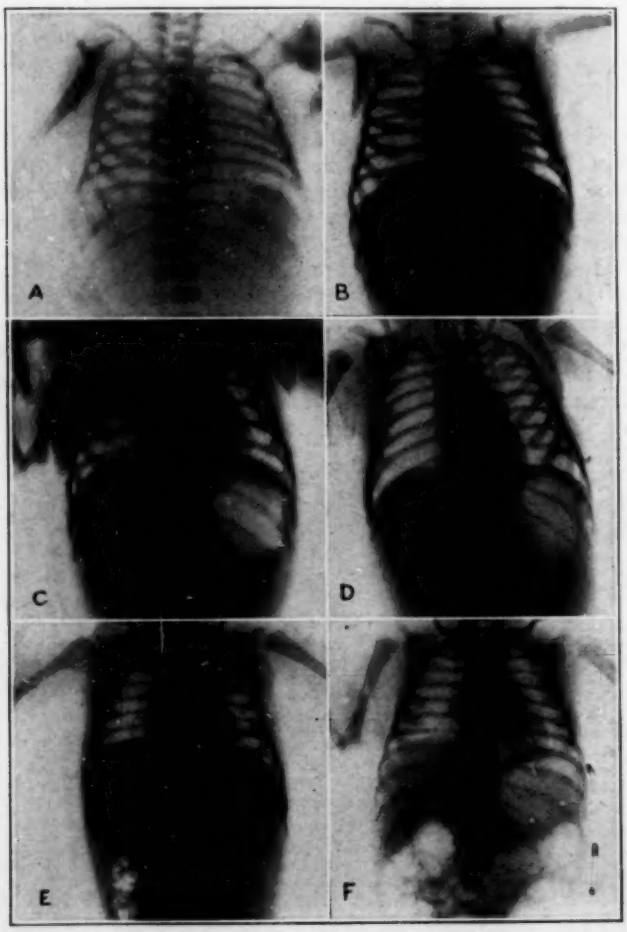


Fig. 5.—Series of roentgenograms of an infant showing gradual changes in thorax and increase of air in abdomen: *A*, immediately after delivery; *B*, five minutes after delivery; *C*, ten minutes; *D*, fifteen minutes; *E*, twenty-four hours; *F*, ten days.

uniform density, although an occasional small area of increased density may be seen which might well be considered as a calcified node, though I cannot conceive of their being such. The periphery of the lungs is uniformly clear, with an occasional suggestion of septal markings. A density in the thymus area was noted in only a few cases.

In this brief description, I have for the most part used the terminology for the adult chest, and can see no reason to change it. There is, however, a question as to the meaning of many shadows such as form the linear markings, and their discussion must be left for a future paper. Their prominence and extension to the periphery is contrary to the opinions of other observers, which may easily be accounted for by the improvements in detail of the roentgenogram made possible by present-day apparatus. It is needless to add that the technic must be very exact and designed to overcome all the difficulties of chest roentgenography and show the greatest amount of normal structure. One must be able to see the structures on the film and decide on their character and meaning from the standpoint of pathology from their actual appearance, and not from their mere position and size. It is possible and practical to roentgenograph an infant at any age, and draw conclusions as to the processes taking place. With further study, it would seem that these conclusions might become quite accurate. Certainly, the infant chest is the basis on which to build the interpretation of the adult chest.

246 Metropolitan Building.

ABSTRACT OF DISCUSSION

DR. LEON T. LEWALD, New York: Has Dr. Wasson observed the relative frequency of enlargement of the thymus gland? This is a very important question because of the fact that in the routine examination of the digestive tract of infants one sees cases of enlarged thymus in infants who show no apparent symptom of this condition. It is possible that some of these cases have a spontaneous disappearance of the thymus enlargement. On the other hand, it might appear advisable to treat by means of the roentgen ray or radium cases of enlarged thymus gland, although they do not give symptoms. This may prevent symptoms appearing later, even as remote a possibility as the supposed enlargement of the thymus gland, which is sometimes associated with hyperthroidism in adult life.

DR. OSCAR O. MILLER, Louisville, Ky.: We have anywhere from fifty to sixty children under our care at a time, children with a history of family tuberculosis. These children are given a quantity tuberculin test, and many of them are considered tuberculous suspects. It would have been very interesting had the doctor inflated the lungs of the stillborn children by way of the trachea, and roentgenographed them to see whether they had any of these lymph nodes extending well out from the hilum.

DR. E. H. SKINNER, Kansas City, Mo.: This is of extreme importance because so much may depend on the character of the child's diet as to the distribution and extent of the development of lymphoid tissues, which include the thymus. We know we can influence extensively the development of lymphoid tissue in cats, at least, by the character of their diet. If children are fed a high carbohydrate diet they will have far more lymphoid tissue, including tonsils and thymus, than those who are kept on a slimmer diet. I hope that Dr. Wasson will add to his charts the body type or general stature of the parents of the child; this could be done very easily. These things should be of interest in the new-born and in children through the first decade of life. Dr. Wasson should continue in this study for ten or twelve years at least, in order to give it the value it ultimately should have.

DR. H. K. PANCOAST, Philadelphia: There is nothing in the appearance of the hilum shadow or the appearance of increased prominence of trunk shadows that is indicative positively of tuberculosis; many other conditions may produce exactly the same appearance. Any respiratory infection, heart disease with decompensation, any irritant will do it, and tuberculosis only as a respiratory infection would cause that appearance and is not characteristic. I am a member of the committee appointed by the National Tuberculosis Association to study the normal chest of the child. In 100 children, clinically normal and which we so regarded roentgenologically, we found lymph nodes, and we believe that lymph nodes up to the size of the tip of the little finger meant absolutely nothing, and I do not want any one to be misled by thinking that the mere presence of a few small lymph nodes in a child's chest means anything, because it means nothing.

DR. E. C. SAMUEL, New Orleans: I agree with Dr. Pancoast in the statement made just now. In collaboration

with Dr. De Buys, I have started a study, now going into its second year, of all children born at the hospital. They are examined within the first twenty-four hours. Other examinations are made in three months, six months and one year. As Dr. Pancoast has said, the lymph nodes have no clinical significance in regard to our study along this line. We have probably passed the 1,000 mark at the present time in the number of roentgenograms made. In regard to the thymus, we have seen a disappearance of an apparently large thymus, with absolutely no therapy, at the end of a year.

DR. W. WALTER WASSON, Denver: The thing that has struck me most forcibly has been the prominence of linear markings and shadows of the chest as we see them at birth, which we have been in the habit of seeing in and considering as belonging to adults. I wish to say that I do not know how to evaluate any nodes or other evidence of lymphatic tissue that I may have shown. I think that Dr. Pancoast is perfectly right—we must not consider every node as pathologic, but we must have some method of evaluating these shadows that we see on the chest. Now our present plan is to start with children at birth. They are examined the first two weeks and every two weeks after that until they are 6 months old, as the changes are very rapid at this age; then, every three months after that. Some of our children are now 3 years old. This work has the cooperation of Dr. Waring, Dr. Burnett and Dr. Carmody of Denver and their assistants, who examine the heart, nose, throat and chest. The patients are selected from all walks of life—the millionaire class and the charity class. We are working on the identification of the shadows of the chest at the present time. We are only making observations. I think that Dr. Samuel is in a better position to tell about the thymus than I am at the present time. I wish to compliment him on his work. The results of inflation of the lung of the stillborn I shall report on later, and the identification of the shadows as requested by Dr. Miller.

Clinical Notes, Suggestions, and New Instruments

A CASE CITING AN ADDITIONAL USE FOR BELLADONNA

CHARLES EVERETT HAINES, M.D., NEW ROCHELLE, N. Y.

Much has been written during the last few years about vagotonia and the action of belladonna on that condition. So common a complaint is vagotonia, and so frequently is belladonna used for its relief, that many clinicians consider this drug one of the few which, in an age of nihilism, can be relied on.

In the case here reported, it will be seen how belladonna not only relieved a condition diagnosed as vagotonia, but supplemented the roentgen ray in assisting at an important decision with regard to the therapeutics.

An apparently healthy man, aged 27, came to me complaining of a sense of epigastric fulness and distress beginning immediately after eating and persisting for an hour or more. This symptom was first noticed about six months before and was increasing in severity.

The kind and quantity of food taken seemed to make no difference in the distress; whenever any food entered the stomach, distress followed. In addition, there was at times a discomfort before meals. There was neither nausea nor vomiting. The bowels were regular without catharsis. The patient did not complain of gas, nor had he ever been jaundiced. At no time had there been a sharp pain in the abdomen. The distress was not relieved by sodium bicarbonate, nor had it shown periods of remission, as pain from an ulcer tends to do.

The patient was compratively tall and slender, with a long, thin neck, flat thorax, and acute substernal angle. A general physical examination and palpation of the abdomen revealed nothing else of note.

A complete gastro-intestinal roentgen-ray series was taken. The films of the stomach showed a ragged contracture of the pyloric quarter, suggesting somewhat a carcinoma. Fluoroscopic examination revealed the same marked contraction that was shown on the films.

Surgical judgment superseded an impulse to make an exploratory incision, and the patient was therefore put on tincture of belladonna, 8 drops, three times a day after meals for three days, until the tongue was slightly dry and the vision a little blurred. Then another roentgen-ray series was taken. The stomach was entirely relaxed and perfectly filled. There was no suggestion of any lesion.

The patient was given tincture of belladonna, 6 drops, three times a day after meals for one week, after which the dose was gradually reduced until it was discontinued at the end of one month.

There was no distress at the time the second roentgen-ray series was taken, nor has any distress returned during the two years since the drug was stopped.

SUMMARY AND CONCLUSION

1. A patient complained of epigastric distress; roentgen-ray examination revealed a contracture of the pyloric quarter of the stomach.

2. Tincture of belladonna permanently relieved the distress and also showed, with the aid of the roentgen ray, that the patient was not suffering from any organic lesion.

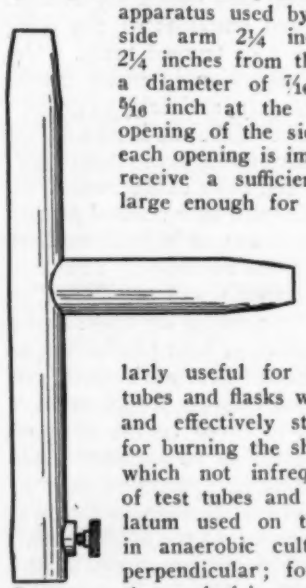
3. No exploratory incision should be made on the basis of a deformed stomach shown by roentgen ray until the patient has been brought under the influence of belladonna, unless there is some other more urgent indication for such procedure.

5 Anderson Street.

A CONVENIENT ADDITION TO THE BUNSEN BURNER*

W. L. HOLMAN, M.D., BALTIMORE

The device shown in the illustration makes a very useful addition to the equipment of a bacteriologic laboratory. The apparatus slips over the Bunsen burner and can be set at any height or direction by means of the thumb screw. The apparatus used by us is 6 inches high, with a side arm 2¼ inches long coming off about 2¼ inches from the top. The brass tubing has a diameter of 7/16 inch,[1] which is reduced to 5/16 inch at the top and to 4/16 inch at the opening of the side arm. The relative size of each opening is important, since each flame must receive a sufficient supply of oxygen and be large enough for its purpose.



Bunsen burner attachment.

The perpendicular flame is used, as in the regular Bunsen burner, for sterilizing the platinum or other needles and similar procedures.

The side flame is particularly useful for flaming the openings of test tubes and flasks with only a minimum of tipping and effectively sterilizing the inside surfaces; for burning the shreds of cotton from the plugs which not infrequently adhere to the inside of test tubes and flasks; for melting the petrolatum used on the surface of fluid mediums in anaerobic cultures while the tube is held perpendicular; for melting sealing wax above the pushed-in cotton plug in closing cultures for storage or shipment, and for many similar purposes.

The side flame can be turned away from the worker when not in use by loosening the thumb screw.

* From the Department of Pathology, the Johns Hopkins University.

1. The diameters of Bunsen burners vary greatly.

Trachoma in New York City.—In 1910 there were recorded 20,915 cases of trachoma in the public schools of New York City; in 1920 the number had been reduced to 944; in 1922 there were 345 cases, all under treatment.—*Am. J. Ophthalmology*, July, 1924.

Special Article

GLANDULAR THERAPY

PHARMACOLOGY OF THYROID SUBSTANCE *

REID HUNT, M.D.
BOSTON

Reference will be made in this summary only to the effects of thyroid and its preparations when administered as drugs; attempts will not be made to deduce the action of the drug thyroid from a study of conditions in which the amount of the thyroid hormone in the body is very probably increased or diminished.

"Thyroid" (Thyroideum Siccum U. S. P.) is defined as "the thyroid glands of animals which are used for food by man, freed from connective tissue and fat, dried and powdered, and containing not less than 0.17 per cent. nor more than 0.23 per cent. of iodin in thyroid combination." The application of the term "thyroid extract" to this preparation, as is so often done, is incorrect; true "thyroid extracts" are seldom, if ever, used in the United States at present. The only nonofficial thyroid preparation listed in New and Nonofficial Remedies is "thyroxin," an active principle which is obtained from the thyroid gland and which has, so far as is known, the same pharmacologic actions, at least qualitatively, as the dried gland, but has the additional advantage of being suitable for intravenous administration.

Thyroid has an almost unique position among drugs, since the only clean-cut indication for its use is to supply a deficiency of the body; when this deficiency is met, the administration of additional amounts of the drug produces effects which can only be termed toxic. The effects produced by its administration in many conditions (such as most cases of obesity, and delayed growth in children) which are not due to deficient action of the patient's thyroid gland are toxic rather than physiologic.

The most characteristic, or the most easily measured, effect of thyroid when administered to a normal person or to one suffering from a condition of hypothyroidism is an increase in the oxidations of the body. This was discovered by Magnus-Levy (1895) and attributed by him to an increased metabolic activity of the resting cells; others attributed the increased heat production to an increased activity of the central nervous system, but recent work (Aub, Bright and Uridil) seems to have definitely settled the question in favor of the view of Magnus-Levy. This effect seems to be obtained more constantly, and in a more quantitative manner, in individuals with myxedema and in cretins than in the normal; in the normal person the action of the administered thyroid is apparently modified in various ways by the activity of the individual's thyroid gland (Plummer).

Administered in repeated doses to normal animals or men, there is a latent period, then a tendency for a positive nitrogen balance to diminish and then to become negative; there is an increased excretion of water, chlorids, sulphates, phosphates, urea, ammonia and purins; a markedly increased output of carbon dioxid; a diminution or disappearance of the glycogen of the liver; a diminished sugar tolerance and perhaps glycosuria; a loss of weight, chiefly due to loss of water; frequently a rise of temperature, sweating, weakness, headache and sometimes nausea, irritability, restlessness, muscle tremors and twitchings, palpitation, tachycardia, precordial pain, and even attacks suggesting angina pectoris. Such results are not infrequently seen in persons taking thyroid to reduce their weight; it should be remembered that some of the most widely advertised "antifat remedies" and also certain proprietary organoproducts contain thyroid disguised in various ways. There are variations in the sensitiveness of different individuals to thyroid; patients with dystrophia adiposogenitalis are said to be hypersensitive. The administration of even a very large single dose of thyroid or thyroxin does not, as a rule, produce very marked effects; the latter seem to be dependent on the continued presence of thyroxin in the tissues (Kendall). The suprarenal glands are not essential for the action of thyroid on the metabolism (Aub, Bright and Uridil).

Administered in proper doses to a patient with myxedema, there is a return of the basal metabolic rate to normal and a disappearance of the symptoms. Plummer and Boothby found a quantitative relation between the amount of thyroxin administered and the effect on metabolism; 1 mg. of the drug, given intravenously, caused an increase in the metabolic rate of adults of approximately 2.8 per cent. (The clinical applications will be discussed in another paper of this series.)

The effect of thyroid disappears slowly; the basal metabolic rate of a person with myxedema which has been raised to normal by the administration of thyroid may not return to its lowest level for a month after the drug is discontinued.

The mode of action of thyroid is obscure; Magnus-Levy stated that thyroid places oxidation processes in the body on a higher level; Kendall and Plummer believe that it acts as a catalyst. Many of the effects following the administration of thyroid (rise of temperature, tachycardia, etc.) may be attributed directly to the increased heat production, but doubtless other factors are involved in the increased bodily and mental development of cretins, the effects on the growth of normal animals, and especially in the marked effects of the administration of thyroid on the resistance of animals to certain poisons. In the case of some poisons, resistance is greatly increased; in others, it is greatly lowered; there is no justification for the statement that thyroid has a general "detoxicatory action."

It was at one time believed that thyroid had a special destructive action on the protein of the body, but this seems not to be the case; the material consumed seems to depend on what is available. Thus, it is possible to have storage of fat with nitrogen loss, or storage of protein with a diet containing much carbohydrate. The reaction of the obese to thyroid is not essentially different from that of normal persons (Grafe).

The action of thyroid is not known to be modified by the simultaneous administration of other glands of internal secretion or of other drugs; there are no well established indications for the use of such combinations.

The rôle of the iodin in thyroid is not known. But all preparations of the gland that have been shown to have, in any noteworthy degree, a "thyroid" action in either normal animals or in pathologic conditions contain iodin; and no iodin compounds other than those derived from the thyroid gland have been found to have a distinct "thyroid" action. Moreover, both experimental and clinical experience (although evidence from the latter source is meager) show that there is a close

* This is the fourth of a series of articles prepared under the auspices of the Council on Pharmacy and Chemistry. When completed, the series will be published in pamphlet form.

parallelism between the iodin content and various physiologic and clinical effects; the only exceptions noted are in cases of very abnormal glands, especially those with a very low percentage of iodin. It was on the basis of this parallelism that the U. S. P. IX adopted the standard for thyroid proposed by Hunt and Seidell (1908) that the official preparation should contain 0.2 per cent. of organically combined iodin; this standard has also been adopted by some foreign manufacturers. The remarkably uniform manner in which the metabolism of a patient with myxedema may be maintained for long periods on the same dose of the official thyroid preparation (when this has been determined for the given individual) indicates the uniformity of the present official preparations. If standardized preparations are not used, it is necessary to determine the dose for a given patient each time a new preparation is used; before the adoption of a standard, the iodin content of the thyroid on the market varied from almost nothing to more than 0.5 per cent., and thyroid was considered an unreliable drug. The unsatisfactory results frequently reported from the use of various special preparations are probably due largely to failure to base the dosage on the iodin content, or, in other cases, to some method of treatment that has altered the normal relations of the iodin in the thyroid.

The U. S. P. thyroid is very stable; preparations twelve years old have shown undiminished activity by both physiologic and clinical tests.

Statements as to the dosage of thyroid are very often meaningless; the term "thyroid extract" is frequently applied to the official preparation; the dosage is sometimes stated as so many "tablets," the amount of thyroid in the tablets and its iodin percentage not being stated, and various special preparations are frequently mentioned without any indication as to what they are. Few, if any, important drugs are administered in as unscientific a manner as regards dosage as is thyroid.

Thyroxin, as stated above, has the great advantage over the dried gland that it may be injected intravenously and therefore is better suited for exact quantitative administration; on the other hand, it may undergo greater destruction in the gastro-intestinal tract and, when administered intravenously, may perhaps be excreted more rapidly (in the bile, for example) than are the products of the metabolism of the gland itself. In any case, animal experiments show that thyroxin is in some of its effects less active, even by intravenous injection, than thyroid administered by mouth, the drugs being given in doses containing equal amounts of iodin. Clinical tests comparing the activity of thyroxin and standardized thyroid on the same patients do not seem to be available; the comparisons of thyroxin with unstandardized thyroid, of which there are a number in the literature, are valueless. But, whereas it is stated (Plummer) that "a daily oral dose of 1.6 mg. of thyroxin will hold the basal metabolism of most thyroidless individuals within normal limits," it is stated (Sturgis) that, in order to keep metabolism at a normal level, "an average amount (of a U. S. P. preparation of thyroid gland) in a patient with complete myxedema is 0.13 gm. twice a day," although some patients of the series required only 0.13 gm. a day and others as much as 0.13 gm. three times a day. One and six-tenths milligrams of thyroxin contains about 1.04 mg. of iodin; and 0.26, 0.13 and 0.39 gm. of U. S. P. thyroid contain 0.52, 0.26 and 0.78 mg. of iodin, respectively.

A total dose of 10 mg. of thyroxin, given intravenously, is said to bring the basal metabolism in myxedema from about —30 to normal; Sturgis found that 2.34 gm. of the U. S. P. thyroid given, in divided doses, to a patient with myxedema raised the metabolism in six days from —32 to +4. Ten milligrams of thyroxin contains 6.5 mg. of iodin, and 2.34 gm. of U. S. P. thyroid, 4.67 mg. of iodin.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

MERCURIC BENZOATE (See New and Nonofficial Remedies, 1924, p. 200).

Sterile Ampoules Mercury Benzoate 2 per cent., 1 Cc.: Mercuric benzoate-N. N. R., 0.02 Gm. (⅓ grain), in a solution of sodium chloride, 2.5 per cent., 1 Cc.

Prepared by Swan-Myers Company, Indianapolis.

MERCURIC SUCCINIMIDE (See New and Nonofficial Remedies, 1924, p. 204).

Sterile Ampoules Mercury Succinimide 0.01 Gm. (⅙ grain): Mercuric succinimide-N. N. R., 0.01 Gm., in water, 1 Cc.

Prepared by Swan-Myers Company, Indianapolis.

MERCURIC SALICYLATE (See New and Nonofficial Remedies, 1924, p. 203).

Sterile Ampoules Mercury Salicylate 0.065 Gm. (1 grain): Mercuric salicylate-U. S. P., 0.065 Gm.; benzocaine-N. N. R., 0.02 Gm., in neutral vegetable oil, 1 Cc. Each ampoule contains more than 1 Cc. of suspension.

Prepared by Swan-Myers Company, Indianapolis.

Sterile Ampoules Mercury Salicylate 0.097 Gm. (1½ grain): Mercuric salicylate-U. S. P., 0.097 Gm.; benzocaine-N. N. R., 0.02 Gm., in neutral vegetable oil, 1 Cc. Each ampoule contains more than 1 Cc. of suspension.

Prepared by Swan-Myers Company, Indianapolis.

RED MERCURIC IODIDE (See New and Nonofficial Remedies, 1924, p. 211).

Sterile Ampoules Mercury Biniodide 0.01 Gm. (⅙ grain) in Oil: Red mercuric iodide-U. S. P., 0.01 Gm., suspended in purified cottonseed oil, 1 Cc.

Prepared by Swan-Myers Company, Indianapolis.

TETANUS ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1924, p. 297).

Lederle Antitoxin Laboratories, New York.

Concentrated Tetanus Antitoxin (Globulin).—(See New and Nonofficial Remedies, 1924, p. 297.) Also marketed in packages of one syringe containing 10,000 units; in packages of one syringe containing 20,000 units; in packages of one cylinder containing 5,000 units with gravity injecting outfit for intraspinal use; in packages of one cylinder containing 10,000 units with complete intravenous outfit.

ANTIPNEUMOCOCCUS SERUM (See New and Nonofficial Remedies, 1924, p. 304).

Lederle Antitoxin Laboratories, New York.

Antipneumococcus Serum, Type I.—(See New and Nonofficial Remedies, 1924, p. 304.) Also marketed in packages of one cylinder containing 100 Cc. with complete intravenous outfit; in packages of one vial containing 100 Cc.

ANTISTREPTOCOCCUS SERUM (See New and Nonofficial Remedies, 1924, p. 304).

Lederle Antitoxin Laboratories, New York.

Antistreptococcic Serum, Polyvalent.—(See New and Nonofficial Remedies, 1924, p. 305.) Also marketed in packages of one syringe containing 20 Cc.; in packages of three 10 Cc. vials; in packages of one vial containing 50 Cc.; in packages of one vial containing 100 Cc.; in packages of one cylinder containing 100 Cc. with complete intravenous outfit.

ACNE BACILLUS VACCINE (See New and Nonofficial Remedies, 1924, p. 315).

Lederle Antitoxin Laboratories, New York.

Acne Vaccine.—(See New and Nonofficial Remedies, 1924, p. 316.) Also marketed in packages of four vials, containing, respectively, 5, 10, 20 and 40 million killed acne bacilli; in packages of one 5 Cc. vial containing 40 million killed acne bacilli per cubic centimeter; in packages of one 10 Cc. vial containing 40 million killed acne bacilli per cubic centimeter.

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SATURDAY, OCTOBER 18, 1924

THE URIC ACID PROBLEM

"To this day, gout is still recognized mainly on the basis of visible urate deposits. The literature abounds in conflicting guesses as to the exact nature of the underlying disorder, and the total impression produced by this literature is one of confusion rather than of progress. Until all the essential facts concerning the behavior of uric acid within the normal organism have been ascertained, the uric acid metabolism in gout is likely to remain a matter of mere speculation."[1] These significant words of a biochemist may well cause the clinician to pause long enough to inquire why medical progress has been tantalizingly slow in connection with a disease so long known. It is not because there has been a dearth of clinical attention directed to the subject; for literally dozens of volumes have been written about gout and the much glorified uric acid. Nor has there been a lack of theories to explain the pathogenesis of the "uric acid diathesis." No; the failure has lain in a circumstance that practitioners and friends of medicine will do well to take to heart; for it has been due largely to the apparent inapplicability of animal experimentation. So much is said, lest we forget that rapid progress in the investigation of medical problems cannot always depend on the human subject.

The most popular current conception of the physiologic behavior of uric acid is that this substance represents the end-product of purin metabolism in the human organism. The common laboratory animals can destroy uric acid within their bodies; at any rate, they excrete little if any of the compound, nor does it accumulate in any noteworthy amount in their blood or organs. Man, on the other hand, has seemed to be an outstanding exception in the order of Nature in that he has impressed investigators with an utter lack of chemical capacity to rid himself of uric acid in any way other than by renal excretion. Consequently, impairment of the kidney function leads to accumulation of uric acid in the blood; this is a well authenticated fact.

Folin[1] and his collaborators have been forced, by the outcome of their investigations, to adopt some seemingly radical and novel views as to the metabolism of uric acid. The evidence is too voluminous and technical for review here; but the outcome is that they have been led to assume that uric acid is not so indestructible in the human organism as is currently supposed. When urate is introduced into the circulation, not all is recovered in the urine; the destruction averages 50 per cent. The losses in man are variable because the two factors involved—speed of destruction and speed of excretion—are subject to independent variations. In some species the destruction of uric acid is extremely rapid, and thus they excrete little in the urine. In others, the specific destructive power is less marked, but the kidneys easily remove it. The unique and characteristic high levels of uric acid in normal human blood are said to be due to a lack of responsiveness on the part of the human kidneys.

According to the Harvard biochemists, this characteristic lack of renal responsiveness is exaggerated in gout, and this is the main or only reason why the gouty carry abnormally high levels of circulating uric acid. The distribution of injected uric acid is substantially the same in gouty subjects as in normal persons. We are assured that there is no reason to believe that the muscles of the gouty contain much more uric acid than the muscles of the healthy. Intravenous injections of uric acid do not produce attacks in gouty patients, but may produce enough temporary injury to the kidneys to result in a transient retention of nitrogenous waste products other than uric acid. In normal persons, no similar retentions have been encountered.

Garrod pronounced gout "a constitutional, often inherited, inferiority of the kidney to excrete uric acid, an inferiority which does not extend to the excretion of other waste substances." Folin asserts that abnormally high levels of circulating uric acid are more frequent in this disease than are demonstrable urate deposits. But those high levels, he adds, can no longer signify that the whole organism is loaded with uric acid; for the newer indications are that the general tissues of the gouty should contain very little, if any, more uric acid than the tissues of normal persons. Although it now seems that urates do not diffuse into living cells of ordinary tissues such as muscle, the possibility remains, we are told further, that cartilage and connective tissue, like dead animal tissues, may permit a slow passage of urates into the localities in which urates are found in the gouty.

From a therapeutic standpoint, it is important, though somewhat revolutionary, to learn that diets rich in protein actually increase the responsiveness of the kidneys, and thus lower the level of circulating uric acid. Usually the dictum to the afflicted has been to "cut down" their protein intake. According to recent studies, the best dietetic method for reducing the circulating uric acid should be a purin-free diet containing

1. Folin, O.; Berglund, H., and Derick, C.: The Uric Acid Problem: An Experimental Study on Animals and Man, Including Gouty Subjects, J. Biol. Chem. 60: 361 (June) 1924.

enough protein to yield from 15 to 20 gm. of nitrogen daily in the urine. We are assured, furthermore, that a small amount of purin-bearing products should be of little consequence, provided the diet is distinctly rich in protein. There is much that is radical, much that is novel, much that is admittedly uncertain still in the study of the uric acid problem; but when old theories fail to fit new facts, it is time to revise the theories rather than discard the facts.

THE OCCASIONAL DANGERS OF RESTRICTED DIETS

A frequent criticism of many of the current investigations on vitamins has been that the experimental features so strikingly demonstrated in certain animal species are, in some respects at least, rarely if ever realized in man. This comment cannot be applied to the manifestations of scurvy, which at present represents perhaps the most clear-cut illustration of an avitaminosis. The recognized dietary aspects of the disease with reference to its etiology, the clinical symptoms, and pathologic lesions in the tissues, as well as the widely appreciated methods of relief and cure are essentially comparable in the experimental scurvy of the guinea-pig and monkey, for example, with the scorbutic disorders of man. Nevertheless, there are species of animals, such as the dog and the rat, that seem to be scarcely, if at all, susceptible to scurvy. Such facts have rightly prompted critical students to hesitate to apply, without further consideration, each new finding regarding vitamins and the effects of vitamin deficiencies directly to man.

Beriberi also is commonly cited as an outstanding exemplification of the effects of lack of vitamin B in man, although it should be frankly admitted that discrepancies between the well known experimental avian polyneuritis following withdrawal of vitamin B from the diet and beriberi have lately been stressed by certain medical writers.[1] Even more doubtful has been the possibility of disease manifestations due to lack of vitamin A in man. Only recently has the debate regarding the requirement of this food factor in any stage of avian nutrition been settled convincingly in the affirmative.[2] In the case of man, notable incidences of xerophthalmia, a symptom of deficiency of vitamin A in certain species at least, have been reported from the Scandinavian countries by Bloch and others.[3]

As happens quite often in clinical medicine, it requires only some education with respect to scientific novelties to bring instances of their occurrence or application to public attention. In view of the extremes in regimen that disease or prescription so often enforce on patients, it is not surprising that deficiencies are likely to manifest themselves in some detectable way. This is particularly true in the very young, in whom growth is or should be progressing vigorously, the requirements for all essentials thereby being particularly pressing and the reserve supplies not as abundant as they may be in adult life. Nevertheless, the latter is not immune from deficiency disorders. There are conditions, such as severe colitis, in which it has often been customary to "spare" the impaired alimentary apparatus by extreme food restrictions. Crohn and Rosenberg [4] have recently commented on the usual failure of therapeutic success in chronic colitis with such limited diets as soups and gruels. On the contrary, they have actually detected conjunctival and corneal inflammations so characteristic of the xerophthalmia resulting from a lack of vitamin A in the dietary regimen. The incidence of ocular and para-ocular disease in colitis has been observed casually in the past. Therapeutic antibacterial measures or other procedures directed locally to the eyes fail to ameliorate the condition; but a change of diet is usually effective in promoting relief. This fact, Crohn and Rosenberg remind us, confirms the impression that these eye lesions are of the nature of an avitaminosis. Consequently, the choice of diet in such chronic gastro-intestinal disorders must look beyond the needs dictated by the condition of the bowel.

FECAL FATS

Although the occasional great importance of a chemical examination of the stools has long been recognized by those who appreciate the aims and investigative technic of modern scientific medicine, we suspect that such fecal tests are rarely undertaken outside of special clinics for gastro-enteric disorders. There is admittedly much that remains to be learned regarding even the usual or "normal" make-up of that heterogeneous mixture termed feces. A portion may consist of undigested and unabsorbed residues of the food intake. During health, this quota is probably smaller than might be suspected. After due allowance has been made for a liberal admixture of such unutilizable food ingredients as the celluloses of plant origin, there remains a considerable quantity of fecal ingredients to be accounted for in some other way. A part consists of living and dead bacteria, which are an ever present component of the intestinal content from the time the first food is ingested by the infant. Such estimations as have been made indicate that the bacterial bodies may at times amount to a fourth or more of the fecal masses. Obviously, dead and disintegrating micro-organisms may contribute a considerable diversity of chemical products to the discharged stools. Another part of the latter may be derived from the desquamated alimentary epithelium and also from the secretions that are poured in abundance into the intestinal tract.

1. The Metabolism in the Avitaminosis of Beriberi, Current Comment, J. A. M. A. **82**: 1614 (May 17) 1924; Beriberi and Rice, editorial, ibid. **82**: 1975 (June 14) 1924.
2. Hart, E. B.; Steenbock, H.; Lepkovsky, L.; and Halpin, J. G.: The Nutritional Requirements of Baby Chicks, J. Biol. Chem. **60**: 341 (June) 1924.
3. Why Xerophthalmia Deserves Attention, editorial, J. A. M. A. **82**: 1048 (March 29) 1924.
4. Crohn, B. B., and Rosenberg, Herman: The Medical Treatment of Chronic Ulcerative Colitis (Nonspecific), J. A. M. A. **83**: 328 (Aug. 2) 1924.

Hence, it becomes a biochemical task of considerable nicety to "unscramble" the medley of ingredients that bear the name feces and to assign them to their appropriate origin and sources.

The feces always yield noticeable amounts of substances that have the general properties of fats. The fecal fat content may be notably increased when there is pancreatic disease that results in a failure to supply lipase to the digesting food residues in the small intestine; and, above all, when the bile fails to reach the gastro-enteric canal in sufficient amounts to exert its normal action as a solvent for fat derivatives during alimentary absorption. But even in health there is fatty material in the feces, and this is true whether fat is present or not in the food; and considerable increment of fat intake usually does not alter the fecal fat content. Such studies as those of Holmes and Kerr [1] at the United States Department of Agriculture and of Hill and Bloor [2] of the University of Rochester support the growing conviction that, in view of the comparative constancy in amount and properties of the fecal fat under a variety of conditions, it is not to be regarded as unabsorbed food fat but rather of the nature of an excretion, whether directly from the blood or indirectly through the normal intestinal secretions. Even during fasting there is an appreciable fat output in such stools as may be collected; and, according to the investigations of Sperry and Bloor [3] at Rochester, in many cases almost as much fatty material appears in the feces on a fat-free diet as on one rich in fat. Furthermore, the composition of the feces fat is different from that of food fat.

In view of these circumstances, Sperry and Bloor venture the belief that the fat of the stools is derived from the blood either directly or indirectly. Their hypothesis secures considerable support from the fact, determined by them, that there is a similarity between the fecal lipoids and those of the plasma in several chemical details that need not be considered here. Sperry and Bloor contend that, if fecal fat originates in excretion from the blood, there are two possible ways in which it may occur. There may be a true excretion of unusable material—waste fat from lipoid metabolism—in which case one would expect the fat excreted to reflect in kind the fat metabolized. On the other hand, the elimination may be considered as a leakage of usable fat due to fat plethora analogous to the leakage of amino-acids through the kidney or the alimentary glycosuria that occurs with a high intake of sugar. If this is true, the lipoid excreted may be expected to reflect in kind the lipoid carried by the blood. Elimination by the bowel, in contrast with renal elimination, is by no means a new conception or a rare occurrence. One need merely recall that calcium, iron and sometimes phosphorus compounds leave the organism preferentially by the bowel. In any event, an advance in our knowledge is likely to be registered now that fecal fat under ordinary circumstances is no longer to be rated as an unabsorbed fragment of the dietary.

1. Holmes, A. D., and Kerr, R. H.: J. Biol. Chem. **58**: 377 (Dec.) 1923.
2. Hill, Elsie; and Bloor, W. R.: J. Biol. Chem. **53**: 171 (July) 1922.
3. Sperry, W. M., and Bloor, W. R.: Fat Excretion, II, J. Biol. Chem. **60**: 261 (June) 1924

PRESENT-DAY CHEMOTHERAPY

Chemotherapy has been defined as the specific treatment of infections by artificial remedies; it aims to cure or arrest diseases due to infections, not by alleviating the symptoms or invigorating the patient, but by directly and specifically suppressing the infection. The modern development of chemotherapy in this sense has been due, in largest measure, to the genius of Paul Ehrlich, a scientist who combined in unusual degree the accomplishments and ideals of the microbiologist, the synthetic chemist and the pathologist. The large problem, from Ehrlich's standpoint, was to produce, by synthesis, substances exhibiting a powerful specific affinity for and a consequent toxic action on the protoplasm of the infecting parasites, while the host should be spared. In the more technical sense, the development of chemotherapy involved the search for compounds that should be maximally parasitotropic and minimally organotropic. The long known action of quinin in malaria and of the ipecacuanha alkaloids served as prototypes, so to speak, of the desired results.

How much has been achieved in a practical way in the newer fields of endeavor during the last few years is summarized by Dale [1] in his presidential address before the Section of Physiology of the British Association for the Advancement of Science, recently convened at Toronto. He notes the treatment of spirochetal infections, syphilis, yaws and relapsing fever, revolutionized; leishmania infections, kala-azar, and Bagdad boil and bilharzia infections that crippled the health of whole populations in countries such as Egypt, now made definitely curable; trypanosome infections, such as the deadly trypanosomiasis, after years of alternating promise and disappointments, brought at last within the range of effective treatment. These have not been the labors of one person or the achievements of a single country. Many minds in various parts of the world have contributed something to secure such a record of progress.

From the theoretical standpoint, it must be confessed that the expectations of the pioneers in chemotherapeutic research have been largely upset. The hope that some of the newer compounds would prove to be directly toxic to the parasite—in other words, that they would directly kill the protoplasm of the latter while the tissues of the host were left unaffected—has not been realized in the outcome of even the therapeutically successful endeavors. There is growing evidence that it is not the parasite alone that is profoundly affected by the drugs of the type here under consideration. Few, if

1. Dale, H. H.: Progress and Prospects in Chemotherapy, Science **60**: 185 (Aug. 29) 1924.

any, of these substances are toxic to the parasites in vitro in any concentration approaching the small dosage that suffices for profound effects in the infected organism as a whole. This is true of the various potent dyes and analogous compounds, of the derivatives of arsenic, and of those of bismuth. Trypanocidal action, for instance, is not merely an interaction between the drug and the microparasite. Evidently the host's tissues enter into the formation of a new trypanocidal substance. The parasites, too, may react in unexpected ways and develop increased resistance rather than enhanced sensitiveness. With unusual insight, Dale has presented the status of chemotherapeutic study in the light of the newer discoveries. The conception, he states, of a remedy not killing the parasites immediately, but modifying their virulence, or lowering their resistance to the body's natural defenses; of a remedy not acting as such, but in virtue of the formation from it in the body of some directly toxic product, either by a modification of its structure or by its union with some tissue component; of an affinity of the remedy for certain cells of the host's body, leading to the formation of a depot from which, in long persistent, never dangerous concentration, the curative substance is slowly released; all these conceptions present themselves, again and again, as necessary for our present rationalization of the effects observed. It is truly remarkable that, amid the repeated revamping of hypotheses, so much of practical importance has nevertheless been brought forth. In any event, it has become clear that narrow points of view will no longer suffice to promote the scientific aspects of chemotherapy. Progress henceforth calls for a large vision, promoted, it may be, by the help of scientific imagination, but never dimmed by the persistence of unverified beliefs.

Current Comment

THE SPECIFICITY OF ISO-AGGLUTININS FOR INDIVIDUAL RACES

Evidence continues to accumulate that the grouping of iso-agglutinins in the blood of various species, as well as of different races of human beings, is specific, at least to some extent, for each race. Ever since Landsteiner's investigation, in 1900, which showed that iso-agglutination followed definite laws, the subject has attracted the interest of medical investigators. At present, the system of grouping described by Jansky[1] is the classification most widely followed. During the last few years, numerous investigators have studied the variations in grouping of the iso-agglutinins at various periods from infancy to old age, not only in white human beings but also in various races in different countries. In a recent report analyzing a study of 1,500 Chinese, Dr. Li Chi-pan[2] of the Hunan-Yale Hospital, Changsha, points out that the blood groups in Chinese seem to be quite different from those in other races, and submits an interesting table comparing the results reported by other investigators with those which he has found. Of many thousands of white persons tested by numerous investigators in England, Germany, Greenland and the United States, Group I averaged from 35 to 50 per cent.; Group II, from 35 to 47 per cent.; Group III, from 6.2 to 15 per cent., and Group IV, from 2 to 10 per cent. Of about 3,000 Chinese examined in various parts of China, Group I averaged from 28 to 31 per cent.; Group II, from 25 to 38 per cent.; Group III, from 20 to 34 per cent., and Group IV, about 10 per cent. In negroes tested in the United States, the Philippine Islands and Africa, Group I averaged from 43 to 64 per cent.; Group II, from 15 to 26 per cent.; Group III, from 18 to 29 per cent., and Group IV, from 1 to 5 per cent. There appears, then, to be a definite relationship between this biologic phenomenon and the race studied. In the present status of our knowledge, there is no reason for believing that the method can be used at all for legal purposes or in determining the presence of admixtures of blood of a foreign race in the white type. Nevertheless, the progress of the investigation and the definite evidence that some racial influence exists on this phenomenon is such as to hold forth promise that some time in the future this important knowledge may be made available to mankind.

1. Isohemagglutination: Recommendation that the Jansky Classification be Adopted for Universal Use, J. A. M. A. **76**: 130 (Jan. 8) 1921.
2. Li Chi-pan: A Study of Fifteen Hundred Chinese Blood Groups, Nat. M. J. China **10**: 263 (Aug.) 1924.

A FORTUNATE THERAPEUTIC ERROR

The mistakes of man may not always prove to be harmful, but they are rarely beneficial. The liability to error on the part of those charged with the care of the sick is continually a source of apprehension, particularly to persons who are prone to worry. In one historic instance a simple error proved to be a blessing that is only beginning to find a wide application. The incident was thus described by the offender, Trousseau:

> In the course of October, 1863, I was consulted by a young married lady, who habitually resides in Paris. She was suffering from subacute exophthalmic goiter. The bronchocele was of great size. When I examined her for the first time, although I had let her rest for a long while, and although I repeated the examination several times, and at sufficiently distant intervals, so as to make sure that she was no longer under the influence of emotion, I still found her heart beat at the rate of 140 to 150 times in the minute. I recommended hydropathy and I wished to administer at the same time tincture of digitalis; but, preoccupied with the idea that there would be some danger in giving iodin, I wrote iodin instead of digitalis, so that the patient took from 15 to 20 drops of tincture of iodin a day for a fortnight. When she then came back to me, her pulse was only 90. I found out my mistake, and I substituted tincture of digitalis for that of iodin, but, after another fortnight, the pulse had again gone up to 150, so that I at once returned to the iodin.

Within the last two or three years, this "error" of Trousseau has been intentionally repeated by Plummer[1] and his associates at the Mayo Clinic, and by a group of clinicians[2] at the Massachusetts General Hospital.

1. Plummer, H. S.: Results of Administering Iodin to Patients Having Exophthalmic Goiter, J. A. M. A. **80**: 1955 (June 30) 1923.
2. Starr, Paul; Walcott, H. P.; Segall, H. N., and Means, J. H.: The Effect of Iodin in Exophthalmic Goiter, Arch. Int. Med. **34**: 355 (Sept.) 1924.

On the basis of a considerable number of observed patients, the latter report that iodin by mouth will produce abrupt remission in most cases of exophthalmic goiter. The remission is often as rapid and as extensive as that following subtotal thyroidectomy. It is believed that iodin is the causal agent of this remission. The element alone as now used has not been shown to be sufficient to suppress the disease permanently. After a patient with exophthalmic goiter has been taking iodin, a rapid rise of metabolic rate and increase of toxic symptoms will occur within one or two weeks if the dosage is stopped. The required dose is seemingly too large to be explained on the hypothesis that it promotes the production of essential thyroxin. The obscurity of the pathogenesis of exophthalmic goiter is paralleled by the diversity of the reports of effective modes of treatment, ranging from extreme therapeutic nihilism to extensive operative intervention. And now, strangely enough, a somewhat empiric procedure, founded originally on a fortunate error, is also establishing a right for serious consideration in the treatment of the disease.

BOTTLED SUNSHINE

During the last few weeks, American investigators have enriched the medical sciences with discoveries that are destined to yield added importance to the consideration of practical aspects of radiant energy, and to make clearer some of the puzzling features of certain diseases. In a previous issue of THE JOURNAL [1] it was indicated that sunlight or the radiations of the quartz mercury vapor lamp have the property of emitting ultraviolet rays in common with a variety of well recognized antirachitic food substances. A comparable basis is thus furnished for their identical curative powers. Almost simultaneously, Steenbock [2] of the University of Wisconsin, and Hess [3] of the College of Physicians and Surgeons, New York, have announced that irradiation of fats otherwise inactive in preventing rickets caused them to become active, and that rations which ordinarily produced wide rachitic metaphysis in the shaft bones of rats became antirachitic and promptly effected a rapid and complete healing of the lesion. According to Hess, the potency of cod liver oil is also enhanced by irradiation. Evidence is already at hand to demonstrate that the tissues of animals irradiated with light develop growth-promoting properties, and that illumination of a ration deficient in antirachitic properties may cause it to become growth promoting. The reported antirachitic effect of irradiated air may now be interpreted from a new point of view. Shall it not soon be said in truth that both animals and plants literally can bottle up sunshine for us—as we ourselves may do in helpful measure if only we deign to permit the beneficent rays to find a way without artificial hindrance to our bodies?

1. The Photo-Activity of Substances Curative of Rickets—A Remarkable Discovery, editorial, J. A. M. A. **83**: 1169 (Oct. 11) 1924.

2. Steenbock, H.: The Induction of Growth Promoting and Calcifying Properties in a Ration by Exposure to Light, Science **60**: 224 (Sept. 5) 1924. Steenbock, H., and Black, A.: Fat-Soluble Vitamin, XVII, The Induction of Growth Promoting and Calcifying Properties in a Ration by Exposure to Ultraviolet Light, J. Biol. Chem. **61**: 405 (Sept.) 1924.

3. Hess, A. F.: On the Induction of Antirachitic Properties in Rations by Exposure to Light, Science **60**: 269 (Sept. 19) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Fund for Medical Books.—Mrs. Charles Denison, Denver, has given the University of Colorado $5,000 and an assured income of $1,000 a year for the purchase of books on medical research.

State Medical Election.—At the annual meeting of the Colorado State Medical Society, October 7-9, Denver, Dr. Henry Sewall, Denver, was installed as president for the ensuing year and the following officers were elected: Dr. George A. Boyd, Colorado Springs, president; Drs. Ben Beshoar, Las Animas, Ernest L. Morrow, Oak Creek, John Andrew, Longmont, William O. Whitaker, Burlington, vice presidents; Dr. Charles N. Meader, Denver, junior delegate to the American Medical Association, and Dr. Byron B. Blotz, Rocky Ford, alternate; Dr. Frank B. Stephenson, Denver, secretary (reelected), and Dr. William A. Sedwick, Denver, treasurer (reelected). The next meeting will be held at Colorado Springs, in 1925.

CONNECTICUT

Diphtheria Prevention in New Haven.—Last year the Schick test and toxin-antitoxin inoculations were offered to and accepted by twenty-one city schools in New Haven, and about 70 per cent. of the children in these schools took advantage of the offer. The result is that there is a group of more than 8,000 school children in the city protected against diphtheria.

Regulation of Midwives.—The state department of health regulates the practice of midwifery in Connecticut. Applicants must obtain a license by examination, and when licensed restrict their practice to cases of normal labor. Each midwife is required to keep records of cases she attends, and these are open to inspection by the state department of health. Of 4,084 births registered in 1923 in New Haven, 916 were delivered by midwives, 71 per cent. of whom were Italian midwives, 11.6 per cent. Polish, 7.9 per cent. Jewish, 4.1 per cent. French, and 3 per cent. Lithuanian.

DISTRICT OF COLUMBIA

Personal.—Dr. Shepherd Ivory Franz has resigned his positions at St. Elizabeth's Hospital, and George Washington University School of Medicine and will be associated with the department of psychology, University of California, Southern Branch, Los Angeles.——Dr. Harvey W. Wiley, who on October 18 celebrated his eightieth birthday, will be guest of honor at a dinner, October 20, at a meeting of the Agricultural Chemists in Washington.

ILLINOIS

DeKalb Limits Medicinal Use of Alcohol.—The city council of DeKalb has enacted an ordinance which prohibits traffic in intoxicating liquor for medicinal purposes, except when furnished directly by a physician to a patient in his care. No prescription for intoxicating liquor may be filled in that city unless, when compounded, the mixture shall be such as not to produce intoxication. The council of DeKalb has called on the federal and state authorities to revoke outstanding federal and state permits, and to discontinue the issue of further permits, authorizing the furnishing, possession and use of intoxicating liquors. The council of DeKalb also requests the federal and state authorities to discontinue the issue of prescription blanks for the prescribing of intoxicating liquors, contrary to the provisions of this ordinance. DeKalb physicians are protesting vigorously. They have engaged counsel, and appealed to the state association for support.

Opinion of Attorney General.—At the request of Dr. Harold B. Wood, health director of the schools of Bloomington, the attorney general of Illinois handed down an opinion concerning the authority of health officers to exclude children from schools. He stated, it is reported, that the supreme court has frequently held that boards of health or school boards or city councils may exclude pupils temporarily from the

public schools when it is necessary to prevent the spread of dangerously infectious or contagious diseases, and that a health officer may temporarily exclude a pupil from the school who refuses to submit to examination, providing he has reasonable grounds for believing that the pupil is affected with a contagious disease. Such action, however, should not be taken on mere suspicion. The attorney general said also that the authority of the city health officer to examine children for contagious disease depends on the provisions of the city health ordinance under which he may undertake to act while the school board may have independent authority under the general school law or a special charter. As a rule, the authority of such officials is concurrent and neither is paramount to the other.

Chicago

Hospital News.—St. Ann's Hospital is planning a $250,000 addition.——St. Elizabeth's Hospital will soon start the construction of a $225,000 nurses' home.——The Augustana Home for the Aged, Seventy-Sixth and Stony Island Avenue, will soon begin the construction of a $150,000 building.——Plans are being drawn for a new $500,000 nurses' home for Wesley Memorial Hospital, 2449 South Dearborn Street.

Society News.—At the first regular meeting of the Chicago Pathological Society in the John Crerar Library, October 13, under the presidency of Dr. William F. Petersen, Dr. Alexander A. Maximow gave an address on "The Development of the Mammary Gland in Vitro," and Drs. R. H. Jaffe and Samuel A. Levinson on "The Effect of Hypercholesterinaemia on Experimental Tuberculosis of Rabbits."—Dr. Herman N. Bundesen, commissioner of health, addressed the Nurses' Alumni Association of the Chicago Postgraduate Medical College and Hospital at the Morrison Hotel, October 13.

IOWA

Personal.—Dr. Charles A. Elliott, professor of internal medicine, Northwestern University Medical School, Chicago, addressed the Blackhawk County Medical Society at Waterloo, September 18, on "Gallbladder Conditions."

Attorney General's Ruling on Optometry. — Attorney General Gibson, in a recent opinion to the board of optometry examiners, held, it is reported, that an applicant must have studied in the office of a registered optometrist in order to qualify for examination for admission to the practice of optometry, and that an applicant who has studied only in the office of a registered physician is not qualified to take the examination. The opinion was requested by Dr. Rodney P. Fagin, chairman of the board of health, in behalf of the optometry board when it appeared that the law was not specific on this question.

KENTUCKY

Personal.—Dr. Louis E. Young, Paducah, has been reelected physician of McCracken County for a period of two years.

Chiropractor Arrested.—T. M. Broughton, chiropractor, Mayfield, was arrested, September 5, for practicing without a license. Broughton was recently convicted and fined $50 and costs on a similar charge.

State Medical Election.—At the annual meeting of the Kentucky State Medical Association, Louisville, September 25, Dr. Robert L. Woodard, Hopkinsville, was elected president; Drs. Elmer L. Henderson, Louisville, George S. Brock, London, and Ben W. Smook, Greenville, vice presidents; Drs. Arthur T. McCormack, Louisville, and Frederick A. Stine, Jr., Newport, delegates to the American Medical Association; Dr. John H. Blackburn, Bowling Green, orator in surgery, and Dr. Virgil G. Kinnaird, Lancaster, orator in medicine. The 1925 meeting will be held at Owensboro.

The Vital Statistics Law.—A systematic and detailed survey is being made in every county in Kentucky by a joint agent of the state board of health and the U. S. Census Bureau with regard to the registration of birth and death certificates. When federal inspectors find babies who have not been registered, they take out warrants for the physicians who failed to make a report within ten days after birth. There are fewer than twenty-five physicians in the state who are violating this law now, according to the *Kentucky Medical Journal*, and recently twelve of these were fined from $50 to $500. Kentucky is one of few states which pay physicians for these certificates. The state, therefore, feels it has a right to this service from physicians. The Kentucky State Medical Association is squarely behind the vital statistics law and always has been.

LOUISIANA

Hospital News.—The completion of a new $500,000 addition to the state leprosarium at Carville was announced by the president of the state board of health, Dr. Oscar Dowling, October 4.

Society News.—A plan of exchanging programs has been adopted by the Shreveport Medical Society and the Ouachita Parish Medical Society, by which each society entertains the other at alternate meetings.

MARYLAND

The Herter Lectures.—The trustees of Johns Hopkins University announce that the sixteenth course of Herter lectures will be given by Archibald Vivian Hill, professor of physiology, University College, London, in the medical amphitheater, Johns Hopkins Hospital, 4:30 p. m., October 16-17 and October 20-21. The subjects will be (1) "The Dynamics of Muscular Activity"; (2) "The Heat-Production of Muscle"; (3) "Chemical Changes Accompanying Muscular Activity"; (4) "Recovery Process After Exercise in Man." Physicians and medical students are cordially invited. A public lecture on "The Solubility of Proteins," under the Herter Lecture Fund, was given by Prof. S. P. L. Sörensen, Copenhagen, October 9. Dr. and Mrs. Christian A. Herter, New York, in 1902 gave to Johns Hopkins University $25,000 to establish a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in medical science. The selection of the lecturer is made by a committee representing the departments of pathology, physiologic chemistry and clinical medicine. The committee consists of Drs. MacCallum, Abel, Longcope and Jones.

MASSACHUSETTS

Hospital News.—Ground was broken for the new building for the Beth Israel Hospital, Boston, October 5. The hospital will cost $1,500,000, of which $961,000 has already been raised. The new institution will have a capacity of 150 beds.

Typhoid Epidemic.—Ten persons were confined to hospitals in Fitchburg, October 2, it is reported, in an outbreak of typhoid fever. The epidemic is believed to have been controlled by stopping the sale of milk by a certain dealer who, with one of his employes, had typhoid fever.

Boston Appropriates Funds for Experimentation.—The city council of Boston appropriated $10,000, October 6, it is reported, to carry on experiments in therapeutic artificial light for use in rickets, tuberculosis and certain skin diseases. The experiments will be in charge of William T. Bovie, Ph.D., professor of biophysics at Harvard University.

Investigation of Medical Registration.—At a hearing, September 23, of the special recess committee of the legislature to investigate medical registration, the Massachusetts Medical Society was represented by Drs. Charles F. Painter and Charles E. Pryor. Dr. Painter told the committee, it is reported, that the state medical society is desirous of having the state board exercise greater control over applicants from low-grade medical schools. He believes that until a group of at least three such schools in the state is eliminated, Massachusetts will be the dumping ground for poor practitioners. Dr. Painter favored a bill which would require applicants for registration as physicians to be graduates of a legally chartered school approved by the board. He opposed abolishing the present board, advocating merely its reorganization.

Hospitals to Close.—The New England Deaconess Association has announced it must close the Concord Deaconess Hospital, October 15, because of lack of funds. The physicians of Concord and surrounding towns served by that hospital will hold a meeting to discuss plans to postpone the closing date so that residents of Concord, Concord Junction, Acton, Bedford, Carlisle, Lincoln, Maynard, Stow, Sudbury and Wayland may hold a mass meeting to consider providing means to maintain the hospital. The hospital staff was given orders to accept no patients who cannot be discharged by October 15 and patients who are already in the hospital and cannot be discharged by that date will be removed to other hospitals.——The health commissioner of Lynn has announced that all patients in the Lynn Tuberculosis Hospital will be transferred to the county institution at Middleton before December 1, if possible, and the Lynn Hospital closed, November 30. Inasmuch as transfer must be made prior to January 1, it was considered economical to advance the date to that given.

University News.—The members of the administrative board of Harvard University Medical School, Boston, were recently announced, as follows:

President Abbott L. Lowell, Ph.D., ex-officio; Dean David L. Edsall (ex-officio), chairman; Dr. Algernon Coolidge, Dr. Harvey Cushing, Dr. Reid Hunt, Dr. John L. Bremer, Dr. Walter B. Cannon, Dr. Charles M. Campbell, Dr. Worth Hale, Dr. Simeon B. Wolbach, Dr. Hans Zinsser, Dr. Kenneth D. Blackfan, Dr. Francis W. Peabody.

The administrative board of the Harvard School of Public Health is as follows:

President Lowell, ex-officio; Dr. David L. Edsall (ex-officio), chairman; Dr. Milton J. Rosenau, Edwin B. Wilson, Ph.D., Dr. Hans Zinsser, Dr. Cecil K. Drinker.

The Cancer Commission of Harvard University, it was announced, comprises:

Dr. Robert B. Greenough, director; Dr. Channing C. Simmons, secretary; Charles Jackson, treasurer; Dr. James H. Wright, pathologist in charge of free diagnosis; William Duane, Ph.D., research fellow in physics; Dr. Henry Lyman, research fellow in chemistry; Charles E. Barr, research fellow in biophysics; Emory Leon Chaffee, Ph.D., research fellow in biophysics; Walter S. Hughes, assistant in biophysics; Dr. William L. McNamara, assistant in pathology.

Dr. Francis H. Lahey, professor of clinical surgery, Harvard University Medical School, has resigned.

MICHIGAN

University Health Service.—Dr. Emory W. Sink, formerly assistant physician on the University Health Service, will this year be director during the absence of Dr. Warren E. Forsythe. His staff will comprise eight physicians and two dentists, the new members being Dr. Ralph B. Fast, otologist, Dr. William L. Bettison, surgeon, Dr. William S. O'Donnell, epidemiologist, and Dr. George Stonehouse, radiologist.

Six Kalamazoo Chiropractors Arrested.—Albert J. Pufahl, Abraham Rabbers, Glenn Gunn, S. W. DuMouchel, Laverne H. DeLong and Wallace D. Smith were arraigned, it is reported, before Judge Blankenburg, September 29, charged with practicing medicine without a license. The court released the defendants without bail to appear again October 14. The complaints were entered by LeRoy H. Potter of the state board of health.

Interns Object to Tuition Fee.—A petition was presented to the board of education of Detroit, September 29, signed by all members of the last graduating class of the Detroit College of Medicine and Surgery, protesting against the payment of a tuition fee of $175, which, it is alleged, the school charges fifth year students. The fifth year students serve in hospitals as interns. Some of the petitioners are now in hospitals in New York and California, but the majority of them are in Detroit hospitals.

MINNESOTA

State Medical Election.—At the annual meeting of the Minnesota State Medical Association, St. Cloud, October 8-10, the following officers were elected: president, Dr. Willard L. Burnap, Fergus Falls; vice presidents, Drs. Arthur S. Hamilton, Minneapolis, John N. Libert, St. Cloud, and Charles W. Moore, Eveleth; secretary, Dr. Carl B. Drake, St. Paul; treasurer, Dr. Frederick L. Beckley, St. Paul. The next annual meeting will be at Minneapolis the second week in October, 1925.

MISSOURI

Physician Arraigned.—Dr. William O. Pool, Stoutland, Laclede County, was arraigned, September 26, before Commissioner Arnold for violation of the Harrison Narcotic Law, it is reported. Dr. Pool is charged in two counts with the possession of narcotic drugs for alleged conspiracy to violate federal laws. His bond was fixed at $5,000 on each count.

Fund for New Medical School.—The movement, started last May by the alumni of St. Louis University, to raise $1,000,000 for a new medical college, has thus far brought a total of $410,000 in pledges, according to Dr. Hanau W. Loeb, dean of the school of medicine. Eighty-two alumni have each pledged $5,000 to the fund. The announcement was made at the formal convocation of the medical and dental schools, October 1, in the presence of a student body that represented thirty-six states and twenty-one foreign countries.

Eye Clinic.—The Missouri State Board of Health and the U. S. Public Health Service will conduct a trachoma clinic at Gallatin, October 29-30, one of many similar clinics held throughout the state. Cooperating in this work is the Wabash Railroad, which furnishes and transports a fully equipped car free of charge. All persons who have trachoma have been urged to attend the clinic. The treatment is free of charge. Dr. R. L. Russell, director of the division of prevention of blindness, state board of health, and Dr. John McMullen, of the U. S. Public Health Service, are in charge of the work.

MONTANA

Smallpox Epidemic.—Thirty cases of smallpox developed at Sidney in the last week of September. Most of the patients are children, twelve of them in the second grade of school. The type of disease appears as yet to be mild.

NEW YORK

Personal.—Dr. William J. Vogeler was reelected president of the Yonkers Tuberculosis and Health Association at the annual meeting in October. Dr. Romeo Roberto was elected vice president.

Hospital News.—The New York State Board of Charities has approved plans for additions and alterations to the Leonard Hospital, Troy, the General Hospital of Saranac Lake, and the Highland Hospital, Beacon.——A campaign for $500,000 has been authorized by the Staten Island Hospital, to begin the latter part of October, to enlarge the facilities of the hospital to 145 beds.——The Hospital Information Bureau, which represents the fifty-six leading hospitals in the city and members of the United Hospital Fund, have issued a statement commending the announcement of Sullivan W. Jones, state architect, that in his forthcoming report he will recommend the expenditure of $100,000,000, beside the $50,000,000 appropriated last year, to modernize state hospitals. Commenting on this plan, E. H. Lewinski-Corwin, Ph.D., secretary of the public health committee of the New York Academy of Medicine, calls attention to the fact that while the number of hospital beds in the city is sufficient for the present, their distribution by type of service does not fully correspond to the actual demands for hospitalization. There is need for extending the facilities for the treatment of mental diseases and neurologic cases.

New York City

Public Health Lectures.—The Medical Society of the County of New York, in cooperation with the New York Academy of Medicine, has announced a series of seven public lectures on health education and prevention of disease to be given at the Academy of Medicine, 17 West Forty-Third Street, at evening, from October 29 to December 10.

Guests of International Health Board.—Dr. Thorvald Madsen of the Serum Institute of Denmark and a consultant of the health department of Denmark; Dr. Tryde of the health department of Denmark; Dr. Fridericia, professor of medicine, University of Copenhagen; Dr. Andreas Diesen, head of the Bureau of Sanitation of the health department of the City of Christiania, Norway, arrived on the *Berengaria*, October 10, as guests of the International Health Board of the Rockefeller Foundation.

Hospital News.—The Beekman Street Hospital has purchased the seven-story building at 109-111 Beekman Street. The hospital now owns a group of modern seven-story buildings with a frontage of 114 feet on Beekman Street and 56 feet on Water Street, representing an investment of about $500,000. According to present plans the building will be reconditioned and occupied by the executive officers and physiotherapy department of the hospital.——The committee, consisting of Surrogate George Albert Wingate, Dr. Thomas W. Salmon, New York, and Dr. Henry A. Cotton, Trenton, appointed to select a site in the Second District for a Veterans' Bureau hospital, have broadcast the requirements. The tract of land must be at least 500 acres, preferably larger, within 60 miles of Manhattan, and in New York, New Jersey or Connecticut.

School of Tropical Medicine.—Columbia University and the insular government of Porto Rico have established a school of tropical medicine at San Juan, Porto Rico, under the administration of Columbia University. It opened, September 25. Pending the reorganization of the Institute of Tropical Medicine and the erection of a laboratory building in San Juan, the courses in the fundamental biologic and chemical subjects will be given at Columbia University, New York. The courses in clinical medicine and surgery, preventive medicine, public health and sanitation, beginning Jan. 5, 1925, will be given in Porto Rico by members of the Institute of Tropical Medicine, the department of health, the Presbyterian Hospital of San Juan, and by members of the hookworm and malaria stations of the International Health Board. The courses will include laboratory work, clinical teaching and the demonstration of sanatorium machinery in action. Clinical material will be available at the Municipal Hospital of San Juan, which has set apart two wards for the exclusive use of the school; at the Presbyterian Hospital of San Juan,

with a capacity of seventy-five beds and an active dispensary service of about 4,000 cases a month; and at the various special hospitals and dispensaries of the department of health which is actively cooperating in the project. The last month of the course will be given over to a medical expedition into the mountains of Porto Rico. The course is open to qualified graduates in medicine and will cover a period of eight months. The cost of living at San Juan will range from $100 to $150 a month. Registration will be limited to twenty students. Inquiries should be addressed to the dean of the Columbia University School of Medicine.

NORTH CAROLINA

Society News.—At the semiannual meeting of the Tenth District Medical Association, Black Mountain, September 24, the following officers were elected: president, Dr. Louis G. Beal, Black Mountain; vice presidents, Drs. Charles Z. Candler, Sylva, Donald M. McIntosh, Old Fort, Jesse M. Russell, Canton, John W. Baird, Mars Hill, Bernard Smith, Asheville, and James S. Brown, Hendersonville; secretary-treasurer, Dr. William H. Scruggs, Jr., Asheville.

NORTH DAKOTA

Personal.—George A. Talbert, Ph.D., formerly associate professor of physiology at the University of Nebraska College of Medicine, Omaha, has become professor of physiology at the University of North Dakota School of Medicine, University.

OHIO

Dean Resigns.—According to *Science*, Dr. Henry Page, dean of the University of Cincinnati College of Medicine, Cincinnati, has resigned.

Physician Arrested.—Dr. Ralph W. Van Horn, Findley, was arrested, September 8, on a charge of violating the Harrison Narcotic Law and was released in the mayor's court on $1,000 bond, to appear for trial, September 16, it is reported.

Smallpox.—Six cases of smallpox were reported from the Leggett School, Akron, September 27, at which time only two cases remained among the students of Kent School where the first cases of smallpox were discovered. All students who had not been vaccinated in these two schools were excluded from attendance for a period of seventeen days.

Health Conference.—The fifth annual conference of Ohio Health Commissioners will be held at Columbus, November 10-15. The subjects to be discussed by local speakers will be the seal of safety for tested wells as a safeguard to tourists; oral hygiene; Schick testing and immunization with toxin-antitoxin mixture, and public health nursing. Dr. Ray Lyman Wilbur, president of Stanford University and a former president of the American Medical Association, will speak on "The Social Aspects of Medicine"; Dr. Haven Emerson, Columbia University, New York, on "The Increasing Menace of Diabetes and Its Potentialities as a Public Health Problem"; Dr. Watson S. Rankin, state health commissioner of North Carolina, on "The Plan for Evaluating Public Health Activities." Henry F. Vaughan, health commissioner of Detroit, will discuss the recent smallpox epidemic in that city; Dr. Stanley W. Osborn, commissioner of health of Connecticut, "The Present Smallpox Peril," and Dr. George F. Dick, Chicago, "Scarlet Fever Prevention."

PENNSYLVANIA

Society Centennial.—The Berks County Medical Society celebrated its centennial in conjunction with the seventy-fourth annual session of the Medical Society of the State of Pennsylvania, at Reading.

Coatesville Physician Sentenced.—Dr. H. D. Fox, Coatesville, formerly of West Chester, was sentenced, it is reported, to pay a fine of $25 and serve nine months in the Chester County prison, when he pleaded guilty to a charge of bootlegging.

Attorney General—Narcotics—Osteopathy.—Attorney General Woodruff handed down an opinion, October 3, at the request of the chairman of the State Board of Osteopathic Examiners, in part, it is reported, as follows: "Osteopathic physicians may not distribute, dispense, give away or administer 'narcotics' except only in the performance of minor surgical operations, or attending to obstetrical cases, and they must then administer or employ the narcotics either themselves or by assistants under their direction."

State Medical Election.—At the annual meeting of the Medical Society of the State of Pennsylvania, Reading, October 6-9, Dr. John Norman Henry, Philadelphia, was installed as president, and the following officers elected: president-elect, Dr. Ira G. Shoemaker, Reading; vice presidents, Drs. Frank G. Runyeon, Reading, Martha Edith MacBride, Sharon, Frederick R. Bausch, Allentown, Edgar S. Buyers, Norristown; secretary, Dr. Walter F. Donaldson, Pittsburgh; assistant secretary, Dr. Christian B. Longenecker, Philadelphia; treasurer, Dr. John B. Lowman, Johnstown.

Philadelphia

Dr. Bricker Appeals for Pardon.—Dr. William H. Bricker, a notorious malpractitioner, prior to his arrest, made an application for pardon and was to be heard in Harrisburg, October 15, it is reported. He states that his health is poor and that he wants a chance to start life anew. He was sentenced to from four to six years in the Eastern Penitentiary, June 7, 1921.

Hospital Fund Approval.—The public is urged to approve the loan bill with the $4,000,000 item for the Philadelphia General Hospital, in a resolution adopted by the medical board of the hospital and received of Dr. Wilmer H. Krusen, director of public health, October 1. The board, which consists of well known physicians interested in the institution, in the resolution states: "There is no more worthy or needed improvement than the rebuilding and modernizing of the city's hospital, and the improvement of the care of the great army of the sick which applies annually for admission."

SOUTH DAKOTA

Personal.—Dr. William M. Barnes, who has been health officer of Sioux Falls for more than three years, resigned, effective September 1.

TENNESSEE

Society News.—The committee on public health and legislation of the Tennessee State Medical Association held a meeting, October 15, at Nashville, to which all officers of the association and secretaries of the component county societies were invited, to formulate a definite policy to be pursued by the committee during the coming session of the legislature. Dr. Harrison H. Shoulders, Nashville, is chairman of the committee.

Venereal Disease Control.—With a grant of about $24,000 from the federal government, the Tennessee Department of Public Health started a campaign for the control of venereal disease, August, 1919. One of the first steps was to establish clinics in the principal cities where the indigent might receive treatment. The expense of these clinics, incident to operation, was assumed by the department the first year, but at present each clinic is financed by the city in which it is. The department of public health also made available without charge arsphenamin for treating charity cases, and started lectures, motion pictures, exhibitions, and the distribution of educational pamphlets on social hygiene. Venereal diseases were made notifiable by statute in 1921, and from September 1, 1919, to December 31, 1923, a total of 29,260 cases was reported. There has been an apparent reduction of 21 per cent. in new primary white syphilitic infections within the last two years.

TEXAS

Physician Indicted.—Dr. Livingston L. Shropshire, San Antonio, was indicted, October 3, by the federal grand jury for violation of the Harrison Narcotic Law, it is reported.

Smallpox in State Asylum.—Seventy-nine cases of smallpox have occurred recently in the State Insane Asylum of Austin, it is reported. The disease, which has prevailed for a few weeks, was first believed to be chickenpox. When officially reported as smallpox, a quarantine was established about the asylum and the state health officer assigned an epidemiologist to cooperate with the city health officer. There are about 1,800 patients in the asylum. One death has been reported.

WASHINGTON

Infantile Paralysis at Tacoma.—At a conference of an advisory board, composed of members of the Pierce County Medical Society and the city health officer, it was decided to send outside the state for an epidemiologist to assist in the infantile paralysis epidemic, which had reached a total of seventy-one cases, September 30, with eight deaths. The president of the Pierce County Medical Society, it is reported, called a special meeting of the society, October 1, to confer about the epidemic. Not only have the Tacoma schools been

closed but the following county schools also: Midland, Dupont, Ruston, Steilacoom and Park Lodge.——At a conference, October 3, it was decided to request the closing of the College of Puget Sound. The president of the college stated, it is reported, that although regretting the action, he would abide by the request. Four new cases of infantile paralysis were reported, October 3 (THE JOURNAL, October 11, p. 1175).

WISCONSIN

Hospital News.—Construction of two new wings at St. Mary's Hospital, Madison, which will cost about $500,000 and be completed in eighteen months, has been started.——A new medical and surgical clinic, to be known as the Chorlog Clinic, has been opened at Madison.

State Board's Rules on Licensing Aliens.—Owing to the large number of aliens applying for license to practice medicine in Wisconsin, the State Board of Medical Examiners has made the following rulings:

1. That the examinations be conducted only in the English language. 2. That no foreigner be admitted to the examination until all items in regard to both preliminary and professional education are verified by official work received directly from the foreign university from which he claims to have graduated. 3. That through photographs, endorsements and other means of identification it is proved without doubt that the man who appears before your board is the individual who actually took the work and completed the course at the foreign medical school from which he claims to have graduated.

At a special meeting of the board in September, twenty-two applicants were granted licenses to practice through reciprocity. The board acted favorably on the reciprocity agreement submitted by Montana, making thirty-five states in all with whom Wisconsin reciprocates on the basis of a written examination. The board raised its requirements regarding reciprocal relations with such states as require a practical examination and those that require two years' practice, so that Wisconsin will now require a practical examination of all applicants receiving reciprocity from Montana, Illinois, North Dakota and Washington and two years' practice of all applicants receiving reciprocity from states which impose this requirement.

PHILIPPINE ISLANDS

Fate of Cured Lepers.—The director of the Philippine board of public health has appealed to the Sociedad Anti-Leprosa for help for the patients who have been treated for leprosy and discharged provisionally as cured. Dr. Jesus, in charge of the treatment of leprosy, states that the results obtained now are highly satisfactory but the prejudices of the public against persons known as lepers is making it very hard for them to resume their life in the community and become self-supporting. They will have to be aided at first, and he solicits the help of this society and others.

CANADA

Hospital News.—According to MacLean's Building Reports, Ltd., contracts were awarded for fifty-six hospitals, costing $5,650,000, in Canada for the first seven months of 1924. This is an increase of more than 100 per cent. over the value of the thirty-four contracts awarded for the same period of 1923, which totaled $2,188,000.

Personal.—Dr. Henry A. Beatty, Toronto, Ont., has been appointed senior surgeon at the Toronto Western Hospital, and assistant professor of surgery at the University of Toronto. Dr. Beatty is the chief surgeon and medical officer of the Canadian Pacific Railway, and has been a member of the Western Hospital staff since 1903.——Sir Robert Borden, former prime minister of Canada, is to be installed as chancellor of Queen's University at the fall convocation.

GENERAL

Historic Painting.—The painting by Armand Dumaresq representing the first international Red Cross Conference at Geneva in 1864 is now in possession of the American Red Cross Museum, Washington. It was learned in 1922 that a London art dealer had the picture and steps were taken to secure the canvas. It narrowly escaped destruction by fire on board ship while being brought from England, and the gilt frame was damaged beyond repair. The canvas was not irreparably injured, and has now been restored.

Pan-American Sanitary Conference.—Secretary Hughes of the State Department has selected Surgeon General Cumming, U. S. Public Health Service, to head the delegation which will represent the United States at the Seventh Pan-American Sanitary Conference at Havana, November 5 to 15. Other members of the delegation are Richard H. Creel of the Public Health Service, Walter G. Campbell of the Department of Agriculture and Dr. Francis D. Patterson of Philadelphia, an expert in industrial hygiene work. The delegates of the Cuban government are: Drs. Mario G. Lebredo, Diego Tamayo, José A. Lopez del Valle, Hugo Roberts, Francisco M. Fernández and Domingo F. Ramos. The president of the republic has granted $15,000 to cover general expenses.

Society News.—At the recent convention of the New England Surgical Society, Hartford, Conn., the following officers were elected: Dr. John W. Keefe, Providence, president; Dr. Alfred M. Rowley, Hartford, vice president; Dr. Ernest A. Wells, Hartford, secretary; Dr. Peer P. Johnson, Beverly, Mass., treasurer.——At a meeting of the Ohio Valley Medical Association in Evansville, Ind., November 11-12, under the presidency of Dr. Leon L. Solomon, Louisville, Ky., Drs. Curran Pope, Louisville, Ky., Daniel N. Eisendrath, Chicago, and Thomas L. Higginbotham, Louisville, Ky., will conduct clinics, and, among others, Dr. Walter F. Martin, Battle Creek, Mich., will give an illustrated talk on "Kidney Lesions Which Have Presented Abdominal Symptomatology"; Dr. Murray N. Hadley, Indianapolis, "Spinal Cord Tumors," and Dr. William C. Caldwell, Evansville, "Practical Application of Our Present Knowledge of Diabetes Mellitus."

International Clinic.—Announcement has been made of the establishment of an International Clinic of Oto-Rhino-Laryngology with courses from January 15 to May 15 and Facio-Maxillary Surgery, May 15 to June 30, at the St. Louis Hospital, Paris, France, the director of which will be Dr. Fernand Lemaitre, and the secretary, Jeanne Gobreau, 120 Avenue Victor Hugo, Paris. The instruction—lectures, demonstrations, operations, laboratory courses in anatomy, histology and pathology—will be given in English. Any graduate licensed practitioner, in good professional standing, will be admitted, the fee for the entire course being $500. The staff will comprise prominent practitioners of Paris and the following invited professors from England and America: Dr. George E. Shambaugh, Chicago; Dr. Greenfield Sluder, St. Louis; Dr. Chevalier Q. Jackson, Philadelphia; Dr. Cornelius G. Coakley, New York, and Sir St. Clair Thomson, London.

Amount of Trachoma Among Indians.—The campaign started by the secretary of the interior to eradicate trachoma among Indians has disclosed that on the Navajo Reservation in Arizona and New Mexico where a total of 6,274 Indians were examined, 1,354 had trachoma. Physicians conducting clinics there performed 1,084 trachoma operations and 243 other eye operations. All told, 1,638 Indians were hospitalized. Clinics were also held at two places on the Hopi Indian reservation where 740 Indians were examined and 209 found to have trachoma. All told, 152 trachoma operations and twenty-seven eye operations were performed on this reservation. None of these Indians was hospitalized. This campaign was inaugurated, July 1, under the direction of a special physician of the Indian Bureau, assisted by surgeons of the United States Public Health Service. Three operating field units were sent out to cover the Navajo, Hopi and other Indian reservations in the Southwest. Each unit was headed by a special physician, nurses and the necessary medical supplies. School buildings were used as temporary trachoma hospitals.

Inter-State Postgraduate Assembly.—Under the direction of the Tri-State District Medical Association the Inter-State Postgraduate Assembly of America invites all physicians in America who are in good standing in their state or provincial societies to be guests of the association and to participate in the program at their next meeting in Milwaukee, October 27-31. A special amphitheater, to seat several thousand, has been arranged in the new Marquette University gymnasium building where all the sessions will be held. More than 75,000 programs have been mailed, special railroad rates have been arranged, and the Milwaukee committee has selected The Pfister as the hotel headquarters. At the banquet and the public meeting following it, addresses will be made by Monsieur J. Jusserand, the French ambassador to the United States; Sir Arthur W. Currie, vice chancellor of McGill University Faculty of Medicine, Montreal; Nicholas Murray Butler, LL.D., president of Columbia University, New York; Professor Theodore Tuffier, University of Paris; Merritte W. Ireland, surgeon general, U. S. Army, and Edward R. Stitt, surgeon general, U. S. Navy. The clinic tour arranged by this association to Canada and Europe starts from Chicago, May 17.

"Safety First" Motion Pictures.—A series of educational motion picture films produced by the Department of the Interior in cooperation with large industrial concerns, is

available for distribution in Chicago by the Bureau of Visual Instruction of the Chicago Board of Education. These films tell the story of the workings of the nation's mineral industries. Another series of films on "safety first" has been prepared. The demand for these films by educational institutions, churches and civic bodies has become so great that the original plan of centralized distribution from the Pittsburgh Experiment Station of the Bureau of Mines has become inadequate, and the best of these films is now available at distributing centers in different states. The films relate to coal, petroleum, sulphur, iron, asbestos, zinc, marble, copper, natural gas, the manufacture of oxygen, the making of fireclay refractories, the manufacture of automobiles, the methods of compressing air, the quarrying of limestone, etc.; others illustrate dangerous and safe practices in mining, efficiency in the combustion of coal, the utilization of water power, and the operation of a gasoline motor. Information as to how to obtain these films from the Bureau of Mines and other sources may be obtained by addressing the Bureau of Visual Instruction, Chicago Board of Education, 460 South State Street, Chicago.

Eye Injuries in Industry.—The National Committee for the Prevention of Blindness has published its findings in a two year study of eye hazards in industry. They say that the prevention of accidents is a moral and economic obligation of the state as well as of individual employers. Safety cannot be legislated into an industrial plant, nevertheless, it is futile to expect certain employers to seriously consider the prevention of accidents and the provision of proper lighting and sanitation if the state gives little attention to these matters. Some states do not even require the report of industrial accidents; others do, but make no effort to set up standards for lighting and sanitation for their industries, notwithstanding the fact that it is simple for any state to obtain from the U. S. Bureau of Standards or from national trade associations and technical societies, drafts of safety codes prepared by experts and approved as national standards. The state's opportunities in this direction will not be fulfilled until law makers and administrators in every state recognize that the prevention of accidents is a moral obligation of the state as well as of the individual employer, and it concludes that the greatest possibilities for the elimination of the unnecessary eye hazards of industrial occupations are in education—education of the state as to its obligations, education of the employer as to the desirability of protecting the eyes of his employees, and education of the employees as to the necessity of using facilities for protection when they are provided.

Fellows of National Research Council.—The National Research Council has established fellowships to increase the supply of medical teachers who are both competent instructors and original investigators. The funds are supplied by a joint contribution from the General Education Board and the Rockefeller Foundation of a maximum sum of $100,000 a year for a period of five years ending 1927. The administration of the fellowships is in charge of a board comprising the chairman of the Division of Medical Sciences, National Research Council, and others who are distinguished as medical teachers and in research. Applicants for fellowships must have an M.D. or Ph.D. degree or equivalent qualifications. The stipend is determined by the board in each case, the normal minimum salary of unmarried fellows being $1,800, and of those married, $2,300. Fellows are not permitted to engage in other remunerative work. The fellowships are allotted at stated meetings of the board in April and September but fellowships may begin at any time. They are for twelve months with an allowance of six weeks for vacation. The board may renew the fellowship on request and may increase the award. The following fellows were appointed in September, with places of work and specialty:

Emily B. Carrier, M.D., Johns Hopkins Hospital, Baltimore. Harvard Medical School, Boston. Physiology and anatomy.
Benjamin Freeman, Ph.D., Columbia University, New York. University of Pennsylvania, Philadelphia. Physiology and pharmacology.
M. S. Hollenberg, M.D., University of Manitoba, Winnipeg, Manitoba, Canada. Johns Hopkins University, Baltimore. Physiology.
Erida L. Leuschner, M.D., Johns Hopkins, Baltimore. (Not determined.) Pathology.
A. E. Mirsky, Neponsit, L. I. Cambridge University, England. Physiology and biochemistry.
H. L. Pelham, M.D., Howard University, Washington, D. C. Columbia University, New York. Physiology.
Bernhard Steinberg, M.D., Boston University School of Medicine. Western Reserve University, Cleveland. Pathology.
F. W. Stewart, Ph.D., Harvard Medical School, Boston. Boston City Hospital. Pathology.
G. J. Strean, M.D., McGill University, Montreal, Canada. State University of Iowa, Iowa City. Biochemistry.
C. H. Thienes, M.D., University of Oregon, Portland, Ore. Stanford University. Pharmacology.
H. B. Van Dyke, Ph.D., M.D., University of Chicago. (Not determined.) Pharmacology.

LATIN AMERICA

Havana Society Election.—The newly elected officers of the Sociedad de Estudios Clínicos de la Habana for the term 1924-1926 are: president, Dr. Francisco María Fernández; vice president, Dr. Rafael Menocal; secretary, Dr. Felix Hurtado; assistant secretary, Dr. R. Perez Reyes; treasurer, Dr. Pedro Barillas; assistant treasurer, Dr. Eugenio Torroella; delegate to the Junta de Inspectores of the university, Dr. Manuel Costales.

National Medical Congress.—The sixth national medical congress will be held, December 8, at Havana, under the presidency of Dr. Angel Aballi. The topics to be discussed are: anemia, leukemia, blood transfusion, gastric ulcer, cesarean section for placenta praevia, industrial hygiene, surgery of the bile ducts, tuberculosis in children, diabetes, protein metabolism and syphilis. Drs. Cañas, Castillo, Recío, Barillas, Fariñas, Costales, Inclán, Montoro and Gran will open the discussions. The American professors, McGee, Andrews, Fox, La Fetra and Ganz of New York City, and Professor Marañon of Madrid will attend. The congress will be divided into six sections.

FOREIGN

University News.—Fuh Tan University, Shanghai, China, has been given $100,000 for a psychology building. Dr. Zing Yang Kuo, who was trained in psychology at Columbia University, New York, and the University of California, is head of the department of psychology at Fuh Tan University.

Typhoid Fever in Japan.—Despite the efforts of sanitary officers to check the spread of typhoid fever there is still an epidemic present which amounts to about fifty new cases a day in Tokio and suburban districts. At this rate the total for the year will probably reach 10,000 cases. According to the *Japan Medical World,* districts which have resorted to anti-typhoid vaccination have met with success in checking the epidemic.

Proposed Council on Pharmacy and Chemistry in Belgium.—The Académie de médecine at Brussels recently appointed a committee consisting of Drs. Henrijean, Ranwez, Beco and De Myttenaere to discuss ways and means to introduce into Belgium some control over proprietary medicinal articles. In the discussion before voting, Henrijean extolled the work of the Council on Pharmacy and Chemistry in the United States and the similar institutions in Australia and the Netherlands. He said that Professor Loewe had organized something of the kind in Esthonia, and Italy and Germany now have special institutions for the purpose. Henrijean quoted Clark's recent plea in Great Britain in which he said that "a furious opposition on the part of those interested must be anticipated," but Henrijean remarked that this opposition can come only from those who fear to have light thrown on their practices. He added, "If we are not on the alert, Belgium will become the dumping ground of all the nostrums of the world." Zunz suggested that the official committee in charge of the revision of the Pharmacopeia might be entrusted with the task. Ranwez recalled that the same question was threshed out in the Académie thirty or forty years ago, and the importance of separating the chaff from the wheat was emphasized then, but the Académie declined to undertake the task although it would have been far easier then than now.

Deaths in Other Countries

Sir Frederick Needham, for twenty-seven years commissioner of the Board of Control; at Bournemouth, England; September 6; aged 88.——Dr. **Sidney Harris Cox Martin,** formerly professor of clinical medicine of University College Hospital; member of the executive committee of the Imperial Cancer Research Fund since its foundation and recently chairman of that committee; author of a textbook on pathology; September 22; aged 64.——Dr. **Manuel Martínez Dominguez,** assistant professor of bacteriology, University of Havana, director Laboratorio Nacional, aged 40; of nephritis.——Dr **Wilhelm Roux,** professor emeritus of anatomy, University of Halle, a pioneer in the study of the mechanics of biology, aged 74. Two prizes were founded in his honor in 1920 and a fund for research on evolution.——Dr. **Lacassagne,** Lyons, at an advanced age; formerly of the medical faculty.——Dr. **V. Sagarra Lascurain,** professor of surgery and formerly rector of the University of Valladolid.——Dr. **Zeferino Falcão,** professor of dermatology in the University of Lisbon, senator.——Dr. **German Díaz Lombardo,** professor of surgery, University of Mexico, author of works on urology and surgical tuberculosis.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 19, 1924.

The Insane Among Railway Employees

Dr. Pactet presented recently before the Société médico-psychologique two patients with general paralysis, one of whom was a switchman and the other a conductor on a de luxe passenger train. On a previous occasion, Pactet had presented before the Société clinique de médecine mentale a number of railway employees who were holding responsible positions involving the safety of the public and continuing to perform their duties, although they had been partially incapacitated for some time. Pactet's communication has given rise to interesting discussions, during which other psychiatrists have reported similar facts. Dr. Henri Colin, chief physician of the St. Anne asylum, stated that he had been commissioned by the court to examine a railway employee charged with having committed assault and battery on a station agent, preceding an attack of epilepsy. The company endeavored to excuse itself by stating that this employee had concealed his condition. However, the patient had been dismissed from military service and his military record book gave epilepsy as the reason for this. The company should have asked him to produce his record book in the service before employing him.

Dr. Legrain holds the view that alcohol can be incriminated for a great many railway accidents. Recently, following an accident in which many persons were killed, the switchman who was to blame for it was sought and was found in a cabaret. The public does not seem to suspect the menace to which it is exposed, though the evidences of intemperance on the part of many railway employees may be seen on every hand. The main reason why there are not more accidents seems to be that ordinarily the engineers in charge of trains make the same run every day and are therefore thoroughly familiar with every block and turn. Their work becomes, to a great extent, automatic. But once the unusual occurs (changes in the time-card, encumbered tracks, extra trains, holiday schedules, delayed trains), the engineer is obliged to assume some initiative, to which he is not accustomed. It sometimes happens that suddenly, within the space of a few seconds, he is called on to take some decisive action in response to a signal. Under such circumstances, if he is under the influence of alcohol, his reaction time may be retarded. Moreover, among drinkers there are many unsuspected cases of chronic alcoholism; these persons may never be seen intoxicated, but it is possible for a gradual decline in their sensory acuity and their intelligence to take place which only an accident reveals. Legrain calls particular attention to color blindness in chronic alcoholics, which many employers overlook and also many physicians. He expressed regret that France had not followed the example of the United States, where, according to information received here, for some time past the railway companies admit to their employ only persons who are known to be of abstemious habits.

Up to the present time, the medical services of the railway companies have confined their examinations mainly to the periodic testing of the organs of vision and hearing of certain classes of employees, but no attention has been paid to the periodic testing of the mental status of those in charge of services involving the safety of passengers. It has been proposed that the Société médicopsychologique draw up a report on this question of the psychiatric supervision of employees attached to the services of common carriers, and that such report be submitted to the minister of public works. In the meantime, Dr. Trénel suggests that those classes of railway employees who submit periodically to a regular examination with regard to their visual acuity might be tested on this occasion as to the pupillary reactions, for it is significant that early disturbances of these reactions reveal latent general paralysis, though there may be no appreciable disturbance of vision.

The Timidity of Surgeons Fifty Years Ago

P. B. Gheusi, a cousin of Gambetta, published recently two articles on the death of Gambetta, which are particularly interesting in that they show the status of surgery forty or fifty years ago. Gambetta died, Dec. 31, 1882. The necropsy, performed by Professor Cornil, showed that Gambetta had succumbed to what were then called lesions of typhlitis and perityphlitis, which had resulted from a ruptured appendix. At that time, appendicitis had not yet been described. Even the word did not exist, and is not used by Cornil in his necropsy report, in which he describes with great care a retrocecal purulent focus, with the appendix surrounded by pus adherent to the posterior wall of the cecum and perforated in two places. Two plates accompany Cornil's necropsy report, which would serve admirably to illustrate any lecture on the pathologic anatomy of appendicitis. The diagnosis had remained in suspense for a week; then, when the existence of the perityphlitis had become incontestable, it was decided that "no operation is indicated or possible," though we learn that at Gambetta's bedside were such surgeons as Verneuil, Lannelongue and Trélat. Some one had proposed calling in the French surgeon Péan in consultation. Gambetta's entourage rejected the suggestion for fear of an operation. It is possible that the high social position of the patient may have inspired this fear of surgical intervention, and Gambetta himself remarked that, if he had been a simple laborer, he would have been transported to the hospital, operated on and possibly cured.

Then, again, a recent article by Dr. Baudet on the last sickness and the death of Napoleon III betrays the same timidity. In July, 1870, a consultation was held, in which, among others, Germain Sée, Ricord and Nélaton took part. Sée, being the youngest, was charged with drawing up the report, in which he affirms the diagnosis of vesical calculus and frankly proposes surgical intervention, or, at least, catheterization. The others refused to sign the protocol and even opposed catheterization. The emperor went into the field with his calculus, though suffering untold agony. Later, in England, Thompson was consulted; being more daring than his French colleagues, he performed a lithotrite operation, which, however, was unfortunately not complete. The patient continued to be in great pain; infection set in, and he succumbed. At necropsy, another stone was found.

Publication of the Works of Pasteur

Dr. Pasteur Vallery-Radot, physician to the hospitals of Paris, the grandson of Pasteur, is performing the pious task of collecting the works of the great scientist scattered in many different publications, and plans to publish a complete edition of Pasteur's works. The third volume of this magnificent edition has just appeared (Masson et Cie, publishers, Paris). It deals with Pasteur's researches on vinegar and wines. As Vallery-Radot so well expresses it, in this volume we find, associated with scientific research, a great interest in practical application: the double aspect of Pasteur's genius. We see also the inflexible logical connection between all his works: the researches on vinegar followed the studies on fermentations, which emanated from discoveries on molecular dissymmetry; the studies on the cause and treatment of "diseases of wines" are the outgrowth of studies on fermentations

and on so-called spontaneous generations; these, in turn, are the prelude to researches on contagious diseases.

Nothing is lacking in this volume; it contains not only Pasteur's letters but also polemical notes, which bring out so vividly Pasteur's character and his terrible struggles. Among many interesting remarks, Pasteur's opinion on scientific journalism deserves special mention. In a letter addressed, in 1866, to Quesneville, director of the *Moniteur scientifique*, he writes: "How worthy and useful the mission of scientific journalism is when the proper moderation is shown in the expression of opinions on persons and accuracy in the statement of alleged facts."

The International Institute of Intellectual Cooperation

The offer made by the French government to the League of Nations to create in Paris an international institute of intellectual cooperation has encountered objections on the part of the British delegate, Prof. Gilbert Murray, who fears that French influence, in spite of the best intentions of the French government, will be brought to bear on an institute the president of which is a Frenchman (Professor Bergson) and the headquarters of which are in Paris. Mlle. Kristine Bonnevie, delegate from Norway, stated that she entertained the same fears. However, the delegates from Brazil, Japan, Paraguay and Portugal expressed themselves in favor of the French proposal.

BELGIUM

(From Our Regular Correspondent)

Oct. 1, 1924.

The Red Cross in the Belgian Congo

Last year, I referred to the plan of establishing a chapter of the Red Cross in Belgium whose work would be confined mainly to the colonies. At the general assembly of the Belgian Red Cross, this year, the council announced the creation of a colonial chapter to be designated "the Red Cross of the Congo." While the services already established are sufficient for the European colonists, there is need of better medical care and treatment for the black population situated far from the industrial centers. One of the first forms of work undertaken by the Red Cross of the Congo will be the establishment of medical aid for the colony, with the main emphasis on the care of the natives. Under the direction of a physician and with the assistance of nurses, sanitary posts will be established at favorable points about a central medical post, which will make it possible to render aid to the sick and wounded in a zone of considerable extent. Sufficient funds have been collected to assure the organization and upkeep for a number of years of the medical post planned.

Ninetieth Anniversary of the Antwerp Medical Society

Simultaneously with the ninetieth anniversary of the Société de médecine of Antwerp, the physicians of the Belgian metropolis celebrated the fiftieth professional anniversary of Dr. Van Vyve. The magnificent ceremonies were attended by many distinguished representatives of science, medicine, the universities, learned societies and political societies, thus attesting by their presence the great social import of this double manifestation of longevity in the field of medicine.

Immigration

The scarcity of the supply of labor in all branches of industry is compelling manufacturers more and more to employ foreigners of various nationalities. A health insurance society composed of miners in Charleroi has published a report showing to what extent that region is being invaded by foreigners. More than forty-six nationalities are represented, the most numerous being the Algerians, Italians, Poles and Moroccans. In a single local health insurance society there were thousands of foreigners. The existence of these nuclei of foreigners puts a great responsibility on the authorities, from an ethnical and hygienic standpoint, giving rise to peculiar moral and social conditions. To prevent disturbances, it is planned to examine at the frontier those who wish to enter the country to determine their physical, moral and social fitness.

Physicians in Relation to the State-Controlled Railways

On the occasion of the annual congress of the Féderation médicale belge, the question of medical service with the state-owned railways was discussed. At the present time, the service is directed by physicians appointed by the railway administration. The compensation received by these physicians is entirely inadequate. The present tendency is to leave the choice of physician to the patient, while the administration provides a supervising physician. After the discussion, the following resolution was passed:

> The sixteenth congress of professional medicine proclaims anew the right of a workman employed by either a public or a private administration to choose his physician, and has decided to work energetically toward the realization of this reform. For the time being, however, the congress has decided to support the claims of the appointed physicians; that is, the periodic revision of the lists of those who have the right to give treatment, the filling of vacancies, and the formation of a joint commission for the purpose of introducing reforms in the medical service of the railways.

Death of Dr. Goris

The death of Dr. Goris, director of the otorhinolaryngologic service of the Hôpital chirurgical de Bruxelles, is announced. The deceased was one of the founders of otorhinolaryngology as a specialty in Belgium. He developed more particularly surgery of the head and neck. In 1896, he established the technic for the radical treatment of empyema of the maxillary sinus, a technic that is still employed. He specialized also in the surgery of the ethmoid bone, the esophagus and the hypophysis. He held successively the offices of president of the Société belge d'otorhinolaryngologie, and of the Société belge de chirurgie, and was appointed a member of the Royal Academy of Medicine.

Regulations Applicable to Opticians

Up to the present time, no definite rules regulating the occupation of an optician have been established. Owing to this fact, certain abuses arise due to the furnishing of spectacles that are not adequate for serious pathologic cases. With a view to obviating this defect in the laws pertaining to the illegal practice of medicine, a society of Belgian opticians and spectacle-makers has been founded in Brussels, which will have the support of the Belgian society of ophthalmology. The new society agrees that its members will not furnish corrective glasses to ametropic patients other than on the basis of prescriptions of ophthalmologists. The society is planning the organization of a board of examiners with the collaboration of certain members of the Belgian society of ophthalmologists, which shall have the power to give diplomas.

Protection of Mineral Waters

A law has been promulgated which provides that the government may, on recommendation of the Royal Academy of Medicine, declare that it is in the interest of public policy to protect any mineral or thermal spring belonging to the state, a province, a commune or a union of communes.

The Academy of Medicine

Dr. Finney, professor of clinical surgery at Baltimore, has been appointed foreign corresponding member of the Royal Academy of Medicine of Belgium.

Instruction in Psychiatry

In connection with the investigations apropos of the bill pertaining to higher instruction, Dr. Crocq called the atten-

tion of the Société belge de médecine mentale to the provisions of the law with regard to instruction in psychiatry. Instruction would consist of a practical course and a theoretical course. The faculties would be free to give to the special clinics as many hours as they thought best. However, the social and scientific importance of psychiatry should be viewed more seriously by the legislator. We should point out this fact to the minister of sciences and arts.

The Société de médecine mentale did not deem it wise to support Dr. Crocq in his opinions, maintaining that instruction should not have in view the creation of specialists but rather well trained physicians in a general sense. It should therefore be left to the faculties themselves to organize the courses of instruction. It is sufficient to emphasize the importance of psychiatry without recommending any precise details. A large measure of liberty should be accorded also the professor in the organization of the courses of instruction.

Fibromas in Relation to Pregnancy

Dr. Brouha has again raised the question as to the indications for operative intervention in fibromas developing during pregnancy. He has operated on fibromas during pregnancy, when the indications have been clear (pains, urinary troubles), by performing hysterectomy. The fibroma may present grave dangers, especially if it threatens to constitute an obstacle at delivery. This was his observation in another case in which death followed hysterectomy.

After this communication, Dr. Rouffart endorsed the view that an operation should be performed as soon as possible, particularly if an embarrassment of delivery seems likely. Myomectomy gives the best results, with respect both to the operative sequels and to the continuation of the pregnancy.

MADRID

(From Our Regular Correspondent)

Sept. 12, 1924.

Gall Duct Surgery

The Paris surgeon Dr. Victor Pauchet has given some lectures in Madrid on surgery of the digestive tract. In the San José and Santa Adela Hospital and the surgical institution of the Red Cross, he also performed two resections of the stomach followed by jejunostomies, in one case for chronic ulcer and in the other for hour-glass stomach complicating ulcer.

On the same day, he gave a lecture, illustrated by moving pictures on gall duct surgery and on the operation which he considers ideal for cancer of the rectum, before the Madrid Medical Society. After a few preliminary statements, he showed the different steps of the operation on the screen. The first pictures were taken from a textbook on surgical technic. After the audience had learned the fundamentals came the films made in Pauchet's service in the Saint Michel Hospital. He said that in cases of simple gallstones, surgical mortality was 2 per cent.; if the stone was in the common duct, the death rate was 5 per cent. If there had been a slight jaundice for a short time, say, two or three weeks, the death rate rose to 15 per cent. If jaundice dated far back, the death rate was 80 per cent. He stressed the need of showing physicians the early diagnosis of gallstone cases, so that they may send their cases to the surgeon in time. As an essential, preliminary to any operation on the gall ducts, Dr. Pauchet believes that rectal instillation by the drop method, during six days previous to the operation, and blood transfusions the day before and the day afterward, constitute the only procedure that will guarantee the control of hemorrhage.

The films on gall duct surgery and on cancer of the rectum demonstrated the surgical technic clearly. Dr. Pauchet regards the three-step perineal-abdominal operation as the ideal method with cancer of the rectum. The first step consists in opening the abdominal wall on the descending colon, to place there the artificial anus. The second step is the laparotomy itself; after the rectum has been isolated to the depth of the pelvis, it is surrounded by a pad, which separates it from the peritoneal cavity. In ending the second step, the peritoneum is not merely closed by a simple suture, but in order to avoid the tears that happen in about 10 per cent. of the cases, the omentum is sutured. Thus intestinal adhesions are avoided, and also intestinal occlusion, which may prove fatal in case the peritoneum should break apart. The last step consists in taking out the rectum and the protective pad through the perineum. Obviously, each of these steps is an operation in itself.

Disappointment of Spanish Pharmacists

The Spanish pharmaceutical profession is facing a material and moral crisis. In order to practice pharmacy, besides a high school education, the law requires graduation from a school of pharmacy, and ownership of a drug store. In a previous letter I referred to the scandal created a couple of years ago, when a congressman, for some purpose of his own, sent to several drug stores prescriptions asking for imaginary substances. In almost all stores, these prescriptions were filled. The pharmaceutical profession refused to take any notice of this matter. It shows, however, a great deal of activity when its material interests are affected. Thus, its representatives have just secured a modification of the rules governing the sale of "patent medicines." The new interpretation will favor Spanish proprietaries at the expense of foreign products, now flooding the market. It must be recognized that the Spanish proprietaries are merely imitations of foreign products. It could not be otherwise, since in Spain there is no chemical industry, and even the basic chemicals have to be imported. Previous governments had refused their approval to the regulations requested by pharmacists. These, however, have succeeded in persuading the present military government to grant their wishes.

The new decree places all kinds of restrictions on the importation of medicinal products. This will hurt therapeutics in general, but it will hurt the pharmaceutical profession itself even more, because the drug stores derive their chief profit from proprietary medicines. Lack of care in the preparation of prescriptions, the advantage to physicians of ordering a product of known composition and dosage with a simple name, and also the higher cost of medicines when ordered by prescription, all explain the favor with which proprietary preparations have been accepted. Pharmacists are required by law to guarantee the condition of the medicines they sell. When a "patent medicine" purchased was found defective, the pharmacists formerly claimed that they were not responsible for drugs manufactured by some one else. The minister of the interior, who is a general, decided to enforce this provision. Rather than agree to the measure, the chief of the bureau of pharmacy resigned his position. The minister offered the post to an army pharmacist, Mr. Romero Landa, but he has also declined, being unwilling to take any steps that might prove harmful to his colleagues.

Radio Service in a Medical Academy

Conforming to the demands of progress, the National Academy of Medicine has been the first Spanish society to equip its assembly room with the necessary apparatus to broadcast its transactions. On the inaugural night, Dr. Cortezo praised the discovery of radiophony, pointing out how it tended to establish a better solidarity among all civilized nations.

Professor Carracido read a paper on "Phosphaturia," and called especial attention to the fact that we must take account

of the loss of phosphates not only in the urine, but also in the feces. Dr. Codina reported a case of a large echinococcus cyst of the lung, found by the merest chance, since there were no symptoms. A few days before, he had exhibited a similar case. It was interesting to hear from the listeners or receivers. The other provincial academies had been requested to report whether they had been able to hear the speeches plainly. Few answers were received. This, in a way, confirms the often repeated complaint that Spanish physicians take little interest in scientific subjects. On the other hand, the Gerona Academy of Medicine was unable to listen at all, because the governor of the province has prohibited the installation of any wireless apparatus.

Opening of the Maternology School

The School of Maternology has at last been opened, precisely twenty years after the laying of the cornerstone. The building is well equipped; it has 200 beds for maternity cases, 100 for pay patients and 100 for free patients. There will also be a school for nurses. The director of this institution will be Dr. Gálvez, a well known gynecologist, and the assistant director is Dr. Bourkaib, the obstetrician of the provincial maternity hospital of Madrid. Both the king and the queen attended the opening. The king inspected the building from the cellar to the attic. Both the queen dowager and the queen consort offered to continue their protection to the institution. As soon as the school was inaugurated, Dr. Gálvez returned to Malaga, where he is the mayor, and Dr. Bourkaib remained in charge of the school.

BERLIN

(From Our Regular Correspondent)

Sept. 20, 1924.

Death of Professor Roux

Professor Roux, the originator of the modern conceptions of the mechanics of embryonic development, died, September 15, after a short illness, at the age of 74. The fact that the provisions of the old age pension law compelled him, a few years ago, to resign from his post was a great shock to him, as to so many other men similarly situated, for he felt that he was robust enough to continue his work as a scientist and a university teacher. But the dire necessity of our economic conditions is, just at present, a stronger force than personal desires. As it resulted, Roux was not deprived of the opportunity of continuing his scientific researches. He was permitted to continue his research work in the institute of which he had been for so many years the director, and it was to be expected that his investigations would still prove fruitful, since he had suffered little abatement of his mental acumen and bodily vigor.

Roux was born in Jena and spent nearly all his study years in that city. After passing his state examination there in 1871, he remained to study philosophy for a year. During the years 1878 and 1879 he was an assistant at the pathologic, chemical and hygienic institute of the University of Leipzig. He then served for a time in the same capacity at the anatomic institute in Breslau, until, in 1888, he was appointed the head of the institute for embryology especially founded for him at Breslau. In the meantime (1880) he had become university instructor and in 1886 professor extraordinarius. In 1889, he was offered and accepted the chair of anatomy in Innsbruck, and in 1895 he was transferred to the University of Halle, where he remained until his death.

In 1881, in an epoch-making work on functional adaptation, he laid the foundations for a new science, *Entwicklungsmechanik* (the mechanics of embryonic development). Important also was his treatise on the conflict of the parts of the embryonic organism, in which he expounded his theory of functional adaptation, which tended to complete or supplement the darwinian theory of the origin of species. From 1885 on, Roux published a number of treatises on the mechanics of embryonic development. In 1895, all of these were collected and published in two volumes under the title, "Gesammelte Abhandlungen über Entwicklungsmechanik." At this time, he founded the *Archiv für Entwicklungsmechanik* which should serve as a special organ for the publication of the results of his researches and those of his pupils and collaborators. In 1897, appeared his special treatise entitled, "Program und Forschungsmethoden der Entwicklungsmechanik der Organismen." Without much opposition, he succeeded in establishing the mechanics of embryonic development as a new branch of medical science. While it is true that some of Roux' conceptions have been somewhat limited in their scope through recent investigations, it may be said that, in the main, Roux attained the goal he sought and has earned for himself a permanent and honored place in the history of medicine.

The Biology of Apes

At a recent meeting of the Berliner medizinische Gesellschaft, Prof. Dr. Pfungst of Frankfort-on-the-Main delivered an address on the significance of the biology of apes for mankind. The speaker brought out that there are many biologic processes which do not appear so distinctly in man as in animals, since in the mixed and domesticated races of mankind they are covered up or suppressed by the dominance of cerebral influences. The ape, which is of pure stock and undomesticated, stands, in the order of animals, the nearest to man and still possesses all instincts in primitive form. While the ape has a stronger hand and jaw than man and has been able to rid himself, in the course of his biologic development, of the appendix, he belongs to an earlier stage than man, in that he still preserves his tail and the infantile uterus.

For scientific observation scientists are limited, in the main, to the few animals kept in captivity. Absolutely healthy animals are required and are difficult to secure, for apes in captivity are subject to many diseases, especially to tuberculosis. Infestation with lice does not seem to play a great part in parasitic affections which are frequent. It is interesting to note that ordinary wounds cause apes little inconvenience, as they heal quickly, though no bandages are applied. If bandages are used, they are always torn off by the animals. Apes seldom inflict injuries on themselves, even though they are allowed to play with shears or sharp pieces of glass. Apes, in captivity, do not propagate successfully; that is, the young usually do not grow to maturity. In Amsterdam, where one of the largest zoological gardens in Europe is located, only sixteen apes had been raised to maturity from 1857-1912. In the Berlin zoological garden, sixteen apes have been raised within a period of four years. When the young ape is born, the mother allows it to cuddle up in her lap. When it becomes conscious of the nearness of the mother's breast, it sets up a series of involuntary, spasmodic motions until it gets the nipple in its mouth. Once discovered and seized, it seldom lets loose of it. It is not by instinct cleanly, nor is any attempt made to teach it cleanliness. Apes are, by nature, nomads; only cave-dwelling animals avoid soiling their habitations. In the Emperor and Empress Frederick Children's Hospital in Berlin a young ape, by way of experiment, was raised with a bottle. At first, apparently as a sign of hunger, but later when frightened or embarrassed, it would suck its thumb. This reflex was not based on any sexual motive. That this was a substitute for the prolonged sucking at the mother's breast, of which it was deprived, seems to be a less forced explanation, and for the sucking of the thumb by children as well, than the explanation given by Freud that sucking of the thumb is the first sexual manifestation. Also in other animals; for example, in

kittens and puppies, sucking of the paw may be observed as a reflex of a persisting feeling of hunger. The bottle-fed ape above mentioned is now 3 years old and the thumb still goes occasionally to the mouth when it is embarrassed or annoyed. It manifests all the pathologic characteristics of an only child.

The search for lice in its fur is an active and passive pleasure reflex. As a sexual reflex, copulative movements were observed early, these being elicited first when, on one occasion, its hands came in contact with a fur garment. The ape is very active and shows all the characteristics of a hypersensitive person. It is subject to fits of anger; is at times rough and unfeeling, and is hard to pacify. It is a social animal. In a group strict ceremonial customs prevail. The leader occupies the best place in the cage. It is fully and definitely established as to just how near to the leader any one of the apes may come; as to which of the other apes a given ape may approach; where a given ape is to sleep, and many other matters of like sort. Apes have no actual language, but communicate by cries and motions.

The ground apes are much more frequently malicious and ill-natured than the tree apes. When apes are in a great rage there is always a mixture of fear; their emotion seems to oscillate between boldness and cowardice. In the undomesticated ape menstruation occurs as in man. The lack of a period of heat is common to all tropical animals and points to the tropical origin of man. In their sexual life, the various families of apes show marked differences, just as occur in various human individuals, who are the result of racial intermixture. Whereas in some kinds of apes sexual promiscuity prevails, in other varieties evidence of strict selection is observed. While these facts cannot be utilized as proof of a common origin of man and ape, they awaken observation of and meditation on the biologic characteristics of man and the most closely related species of animals.

Suicide Statistics for Germany

In times of peace, we had in Germany an average of from 8,000 to 9,000 suicides each year. During the war, a decrease was noted, but from 1919 on there was a rapid increase, until in 1922 the total reached almost 13,500, and in 1923, actually 17,000. In the first half of the current year, 6,500 suicidal deaths were reported, which marks a decrease over 1923. There are, then, still two deaths annually from suicide for each 10,000 inhabitants. The rate in the large cities is greater than in the provinces.

Marriages

RAYMOND E. DOERING, Tama, Iowa, to Miss Marie Taubert of Cape Girardeau, Mo., at Marshalltown, Iowa, September 20.

BENNETTE BAUCOM POOL, Winston-Salem, N. C., to Miss Alta Griffin Debnam of Clayton, September 20.

LOUIS DEKEYSAR BELDEN, Indianapolis, to Miss Lona Frances Pardue of Washington, D. C., September 10.

CHARLES ELLIOTT HAYS to Miss Mary C. Murphy, both of Johnstown, Pa., in Chicago, July 18.

GORDON S. BUTTORFF, Indianapolis, to Miss Sara Ruddell of Jeffersonville, Ind., September 27.

JULIUS LANE WILSON, New York, to Miss Mary Louise Kirk of Baltimore, October 4.

CHARLES I. HERRINGTON to Miss Phoebe M. Clark, both of Bad Axe, Mich., September 20.

RICHARD BLISS LEITH to Miss Gladys Evelyn Lord, both of Lawrence, Mass., August 3.

WALTER EDWARD DANDY to Miss Sadie Martin, both of Baltimore, October 1.

JOSEPH L. BETTAG to Miss Isabella Anderson, both of Chicago, September 13.

Deaths

Selian Neuhof ✠ New York; Medical Department of Columbia College, New York, 1893; visiting physician to the Central Neurological Hospital; consulting physician to the Broad Street Hospital; attending physician and chief of the cardiac clinic at the Lenox Hill Hospital; author of "The Heart" and "Clinical Cardiology"; aged 53; died, October 6, of heart disease.

Richard Allen Freeman, Burlington, N. C.; Washington University School of Medicine, Baltimore, 1870; member of the Medical Society of the State of North Carolina; for many years county coroner; aged 78; died, September 17, at a hospital in Greensboro, following a long illness.

Stephen Young, Rochester, N. H.; Long Island College Hospital, Brooklyn, 1881; member of the New Hampshire Medical Society; for ten years city physician of Dover; on the staff of the Rochester Hospital, where he died, September 28, following an operation, aged 70.

Homer N. Oliphant, Frankfort, Ind.; Illinois Medical College, Chicago, 1908; member of the Indiana State Medical Association; Spanish-American War veteran; proprietor of the Palmer Community Hospital, where he died, September 29, of pneumonia, aged 44.

Charles W. Caldwell, Chelsea, Okla.; Ensworth Medical College, St. Joseph, Mo., 1905; member of the board of education for six years; aged 45; died, September 27, at a hospital in Springfield, Mo., of septicemia, following the bite of a spider.

Mortimer Lampson, Jersey City, N. J.; Medical Department of Columbia College, New York, 1866; member of the Medical Society of New Jersey; Civil War veteran; aged 79; died, August 25, of myocarditis and arteriosclerosis.

W. C. Ogden, Fairmont, W. Va.; Bellevue Hospital Medical College, New York, 1885; member of the West Virginia State Medical Association; aged 59; died, September 8, at the Johns Hopkins Hospital, Baltimore, of arteriosclerosis.

Worth W. Walton, Mancelona, Mich.; Detroit College of Medicine and Surgery, 1914; member of the Michigan State Medical Society; aged 35; died, September 11, at the Mercy Hospital, Cadillac, of cardiac thrombosis.

Windom William Kimsey, Ducktown, Tenn.; Emory University School of Medicine, Atlanta, Ga., 1915; member of the Tennessee State Medical Association; aged 34; died, September 20, following a long illness.

Mardis Edward Gleason, Newton, Mass.; University of Vermont College of Medicine, Burlington, 1884; member of the Massachusetts Medical Society; aged 65; died, September 28, following a long illness.

Charles Herbert Ransom, Syracuse, N. Y.; Medical Department of the University of the City of New York, 1874; formerly coroner of Madison County; aged 73; died, September 19, of heart disease.

Samuel M. Baker, Alma, Neb.; Eclectic Medical Institute, Cincinnati, 1892; county physician; formerly coroner and member of the city council; aged 59; died, September 16, of carcinoma of the intestine.

Ellis I. Dozer ✠ Crooksville, Ohio; Eclectic Medical Institute, Cincinnati, 1892; aged 55; died, September 21, at the Grant Hospital, Columbus, following an operation for carcinoma of the throat.

Frank W. P. Butler, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1882; member of the South Carolina Medical Association; aged 65; died suddenly, September 27.

Albert Henry Smith, Camden, N. Y.; Medical Department of Columbia College, New York, 1876; member of the Medical Society of the State of New York; aged 71; died, September 29.

Merton Ogden Phillips, Fremont, Ohio; Cleveland College of Physicians and Surgeons, 1894; member of the Ohio State Medical Society; aged 56; died suddenly, September 23, at St. Paul.

Frank Cousins Pagan ✠ Westerly, R. I.; Chicago (Ill.) Homeopathic Medical College, 1884; Hahnemann Medical College and Hospital, Chicago, 1905; aged 63; died, September 27.

Herman Weston Marshall ✠ Boston; Johns Hopkins University Medical Department, Baltimore, 1904; aged 49; died, October 4, at the City Hospital, of skull fracture.

Joseph H. North, Pleasantville, N. J.; Jefferson Medical College of Philadelphia, 1869; Civil War veteran; formerly mayor of Pleasantville; aged 82; died, September 28.

George Deverell Barney, Brooklyn; Long Island College Hospital, Brooklyn, 1889; aged 59; died, September 30, at the Brooklyn Hospital, of carcinoma of the thyroid.

Charles Edwin Dennis, Baltimore; Hahnemann Medical College and Hospital of Philadelphia, 1892; aged 71; died suddenly, September 3, of cerebral hemorrhage.

John Henry Amerland ✠ St. Louis; University of Michigan Medical School, Ann Arbor, 1883; on the staff of the Lutheran Hospital, where he died, June 4, aged 69.

James Lary Roquemore, Long Branch, Texas; University of Tennessee College of Medicine, Memphis, 1892; aged 61; died, September 8, of cerebral hemorrhage.

Mark J. Bagley, Whitewater, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1884; aged 70; died recently, at Norfolk, Neb., of heart disease.

Benjamin M. Briggs, Brooklyn; Medical Department of Columbia College, New York, 1868; Civil War veteran; aged 82; died, September 30, of heart disease.

James Benedict Rooney Cooper, St. Helens, Ky.; University of Louisville School of Medicine, 1894; aged 60; died suddenly, September 23, of heart disease.

Clifton Archer Leech, Wellston, Mich.; College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 70; died, September 24, following a long illness.

William Prescott, Dallas City, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; Civil War veteran; aged 85; died, September 23, of senility.

Elijah Warren Boyles, Flora, Ill.; Rush Medical College, Chicago, 1862; Civil War veteran; aged 88; died, June 4, of pulmonary edema and senility.

Henry M. S. Cason ✠ Edenton, N. C.; University of Maryland School of Medicine, Baltimore, 1899; aged 48; died, September 23, of angina pectoris.

John Duff ✠ Boston; Medical School of Harvard University, Boston, 1890; aged 64; died, September 28, at the Carney Hospital, following an operation.

Edward R. Darche, Danville, Que., Canada; University of Montreal Medical Faculty, 1865; aged 85; died, July 28, of polyneuritis and arteriosclerosis.

Dee Williams ✠ Anson, Texas; Vanderbilt University Medical Department, Nashville, Tenn., 1900; aged 45; died in June, of cerebral hemorrhage.

Otis Kimball Newell, New York; Medical School of Harvard University, Boston, 1882; aged 65; died suddenly, September 28, of heart disease.

William S. N. Calhoun, Lavacca, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1874; aged 73; died recently, at Archie.

Robert M. Alexander, Lewistown, Pa.; Jefferson Medical College of Philadelphia, 1865; aged 78; died, September 23, at the Lewistown Hospital.

Ferdinand Jones, Jr., Millville, N. J.; Medico-Chirurgical College of Philadelphia, 1897; aged 51; died, June 22, of cerebral hemorrhage.

Smith C. Shane, Philadelphia; Cleveland (Ohio) University of Medicine and Surgery, 1863; aged 87; died, September 23, of heart disease.

William Oliver McFall, Parshall, N. D.; Bellevue Hospital Medical College, New York, 1876; aged 73; died, August 30, of heart disease.

Frederick John Wilkie, Oshkosh, Wis.; Rush Medical College, Chicago, 1875; aged 76; died, September 28, of arteriosclerosis.

Philip H. Metz, Oshkosh, Neb.; University of Nebraska College of Medicine, Omaha, 1892; aged 54; died suddenly, September 8.

James I. Hale, Anna, Ill.; Chicago Medical College, 1874; proprietor of the Hale Sanatorium, where he died, October 3, aged 80.

George S. Calvert, Chicago; Northwestern Medical College, St. Joseph, Mo., 1885; aged 73; died, October 1, of bronchitis.

Benjamin G. Gillespie, Covington, Ky.; University of Louisville School of Medicine, 1894; aged 54; died, September 22.

Maro Franklin Underwood, Pasadena, Calif.; Hering Medical College, Chicago, 1895; aged 66; died, July 19.

C. B. Hitchcock, Friendly, W. Va. (years of practice); aged 71; died in July, of carcinoma of the stomach.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

JACK SPRAT BREAD

Introducing Nostrum Methods in the Baking Industry

Men of the type that the underwear manufacturers call "over-size" and women that the corsetieres designate as "stylish stouts" are being appealed to through large newspaper advertisements to "banish" their overweight by eating "Jack Sprat Bread"—"The Enemy of Fat." This bread is put on the market by Carl Sulzer & Co. of Chicago and proclaimed by Sulzer to be "My Magical Discovery." It is said to be "rich in protein" and "unusually low in starch."

Naturally, physicians have been asked by their patients for information regarding this latest addition to the alleged cures for obesity. Courteous letters written by physicians to Carl Sulzer & Co. requesting data regarding the carbohydrate content of Jack Sprat Bread have been ignored by that concern. The Bureau of Investigation of THE JOURNAL, after receiving inquiries, wrote to the Sulzer concern asking for the proportions of protein and starch in Jack Sprat Bread. This request also was ignored, as was another sent ten days later by registered mail. This attitude on the part of Carl Sulzer & Co. naturally aroused the suspicion that the exploitation of Jack Sprat Bread was a piece of quackery. It seemed inconceivable that a concern doing a reputable business and putting out a meritorious food product, for which high protein and low starch content were claimed would object to telling physicians just what proportions of protein and carbohydrate the product had.

Finding it impossible to obtain the information sought from the Sulzer concern itself THE JOURNAL obtained the information from two independent sources. One analysis was made by the American Institute of Baking founded and conducted by the American Bakers' Association, an organization of the leading representatives of the baking industry; the other was made by Prof. Lewis B. Allyn, director of the Westfield Testing and Research Laboratories. The two analyses agree in essentials. Before giving the results of these examinations it is worth noting some of the claims made for Jack Sprat Bread.

"Jack Sprat Bread is unusually low in starch content."
". . . easily and pleasantly Jack Sprat restores the beauties of form and features."
"Nothing can reduce you as Jack Sprat will."
"Eat all the Jack Sprat your appetite desires."
"Eat all you want, whenever you want."
"Made from a costly, special, anti-starch flour."

What are the facts? The analysis shows that Jack Sprat Bread has between 29 and 33 per cent. of starch and a total carbohydrate content ranging from 36 to 40 per cent. Ordinary bread contains about 45 per cent. starch and 50 per cent. total carbohydrates. The protein content of Jack Sprat Bread averaged about 18 per cent. as compared with between 9 and 10 per cent. in ordinary bread. The food value of Jack Sprat Bread, according to Professor Allyn, is 1,139 calories per pound as compared with 1,140 in whole wheat bread or 1,145 for white bread from bakers' flour. Professor Allyn sums up his investigation with the statement that Jack Sprat Bread seems to be "a very ordinary product, resembling a hybrid between a gluten and a whole wheat bread."

It is obvious from these analyses that the statement that Jack Sprat Bread is unusually low in starch-content is false as are also the statements that it is made from an "anti-starch flour" and that "practically all starch is removed." Neither is it true that the obese can hope to reduce by eating all they want, whenever they want it. The claim that "nothing can reduce you as Jack Sprat will" is sheer quackery. Any woman who will eat the same amount of ordinary whole wheat bread and will follow the rigid diet recommended in each package of Jack Sprat Bread can reduce her weight just as rapidly and at less expense.

The exploitation of Jack Sprat Bread is a piece of commercial trickery. The obese are led to believe from the advertising that Jack Sprat Bread has positive reducing qualities. It has nothing of the sort. Those who buy the stuff find that it is necessary to avoid cake, pastry, potatoes, cereals, milk, candies and various other fat-producing foods and that they must eat Jack Sprat Bread in the place thereof. If one would avoid exactly the same list of foods and substitute ordinary white bread for Jack Sprat Bread and eat no more of it than one would eat of Jack Sprat Bread, reduction could be brought about at just the same rate. The fat woman who purchases Jack Sprat Bread in the idea of reducing her weight is simply being "kidded by experts."

Beauty of Form and Feature
No Longer Marred by Overweight
JACK SPRAT- the Enemy of Fat
Wins Praises Everywhere
You Can Order by Mail—
Special "2 Weeks Trial Offer"
The "Two Weeks" Test Will Prove It.
Satisfaction Guaranteed or Your Money Back
Jack Sprat—The Enemy of Fat
Made With a Special Costly Flour
The Easy Way to Reduce—
Eat Jack Sprat Regularly
What Should You Weigh?
Correct Weights for WOMEN
"The Enemy of Fat"
JACK SPRAT
BREAD
GOOD DEALERS WANTED
CARL SULZER & CO., 114 West Huron St., Chicago, Ill.

A typical piece of Jack Sprat Bread advertising. The original measured 8½ inches by 12½ inches—occupying more than one fourth of a page of a large newspaper.

The American Bakers' Association, through its laboratories in the American Institute of Baking, is investigating these hybrid bakery products. The annual report of the institute, just issued, says in part:

"An investigation of special breads has been made during the year particularly in reference to those types which have been recommended for the reduction of weight. Analyses of these breads have been made and their composition and claims studied. These breads as a class contain a somewhat higher proportion of protein and roughage than ordinary white or whole wheat bread, which is usually due to the use of bran and coarse flour."

"The claims made for these weight-reducing breads are exaggerated and misleading. An examination of the advertising literature of one of the most conspicuous brands reveals that the bread must be used in connection with a typical weight-reduction diet. The virtues of the bread are thus resident in the supplementary diet and not in the bread per se. If the same amount of white bread were substituted in one of these recommended reduction diets essentially the same results would follow."

We hope that these representatives of the reputable bakers of the country will decide to publish in their official organ *Baking Technology* the detailed results of such analyses as they may make of the nostrums of the baking world. The sale of bakery products by "patent medicine" methods and under quackish or fraudulent claims tends to break down public confidence in the baking industry. An exposure of frauds in this line would do much good; enlightened self-interest on the part of the bakers would be in line with the public's interest on this matter. The baking industry, as one of the most vital and fundamental of human group activities, has no place in its ranks for quacks or fakers.

Correspondence

"RELATIVE POSITION OF REST OF THE EYES AND THE PROLONGED OCCLUSION TEST"

To the Editor:—In the review of my monograph on "The Relative Position of Rest of the Eyes and the Prolonged Occlusion Test" (THE JOURNAL, July 26), your reviewer states that the "prolonged occlusion test" is used to relax spasm of the extrinsic ocular muscles *exactly* as atropin relaxes a spasm of the ciliary muscle. (The italics are mine throughout.) No such claim is made in the book itself. On page 2, while the effect of the "prolonged occlusion test" is compared with that of a cycloplegic, the *difference* between them is specifically stated.

Again, he states that no matter what the patient's muscle balance, refraction, or age, *"if asthenopic symptoms were present, a patch was placed over one eye,"* etc., from which any ordinary reader would infer that *all* patients presenting symptoms of asthenopia were subjected to the test. This is contrary to what is stated in the book. There it is stated specifically that the test has a limited application. Thus, on page 14, "only those patients have been selected for the purpose, who, by a combination of intelligence and a sincere desire to rid themselves of serious and annoying symptoms have seemed suitable for it." Moreover, Chapter IX is entirely devoted to a consideration of those cases in which the test is particularly indicated.

Your reviewer also states that by the end of the period of occlusion, the extrinsic ocular muscles were *"supposed"* to be sufficiently relaxed so that the true muscle balance could be obtained. This is a misstatement of fact. On page 4 of the book there is the sentence, "It must be admitted at once that *there is no means of knowing absolutely* when this state of minimum contraction has been reached."

Your reviewer, moveover, admits using the word "supposed" advisedly because the phrases *"it is believed"* and *"no doubt"* occur in such profusion . . . "throughout the booklet." This is a misstatement of fact. The facts are that the phrase "it is believed" does not occur at all. "I believe" occurs once, and does not refer to any fact or theory in the book. "No doubt" occurs four times in such phrases as "no doubt the refraction should be corrected," and in no case refers to any fact or theory in the book.

F. W. MARLOW, M.D., Syracuse, N. Y.

"RATE OF PROGRESS OF FOOD RESIDUES THROUGH THE BOWEL"

To the Editor:—In THE JOURNAL, August 23, appeared the report of the bead experiment by Drs. Alvarez and Freedlander. There are two reasons why this is misleading, the first being the acceptance of an apparently normal, which is merely a high average condition, but probably far from normal; the second, that with the use of small beads there is too great opportunity for lodgment in some pocket of the

colon of many of these, leading to erroneous conclusions as to the length of time food residues occupy the tract. Several years ago I used colors instead of beads; colors such as carbon black, the blueberry or blackberry, or gelatin colored with cochineal, and my results were far from those of the authors mentioned, even though the experiments were performed with average, consequently subnormal, subjects.

These results, averaged through large numbers, gave forty-eight hours, which did not regard as anything near a normal rate of passage of food residues, realizing that the usual habits of eating guarantee a slowing of the travel rate of foods through the entire tract, particularly through the colon.

Some of these patients showed two regular stools a day, before and during observation, yet the color showed first after twenty-four hours and showed last after seventy-two hours, the peak of passage corresponding with the forty-eight hour period quite closely.

The same subjects were given severe saline purgation for three days, sodium sulphate being used in not less than 3 ounce (90 c.c.) doses first thing in the morning on an empty stomach. A daily cool 3 quart (liter) enema was used to distend thoroughly and thus empty the colon, and diet was so arranged as to preclude the possibility of fermentation, protein excess or dealkalization by use of foods from which the normal alkalis had been filched by processing.

In from a few weeks to a few months, these patients showed an average travel rate for the entire tract of approximately twenty-four hours instead of the former average of forty-eight, with an improvement in general health that was simply amazing. Some of the patients showed indican on first urinalysis, and this was absent after the travel rate of food residues was speeded up to what I conceive to be the normal, as was to be expected.

If physicians accept the findings of Alvarez and Freedlander as an indication of the normal time rate of food residues, it is easy to see that great harm is going to be done many patients, and this prolific source of intestinal toxemia will be still further ignored.

To lull the physician into a state of assurance in colonic stasis by misleading researches, such as the bead experiment is bound to be, is to deepen further this growing tendency to colonic fermentation due to the long residence of food residues in an environment favorable to both fermentation and putrefaction, with heat, moisure and carbohydrate residues.

W. H. HAY, M.D., Buffalo.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DROWNING AND RESUSCITATION

To the Editor:—In THE JOURNAL, September 6, Mr. Wills Maclachlan, Toronto, in discussing resuscitation, said, "We have cases of men submerged for from fifteen to twenty minutes, taken out, and in an hour and five minutes resuscitated." Dr. Yandell Henderson said, "I would again confirm fully what Mr. Maclachlan has said." In "Medical Jurisprudence, Insanity and Toxicology" by Chapman, Edition 3, p. 123, I note: "A human being, as a general rule, dies if submerged for a period of from four to five minutes." As only a professional can "hold his breath" for five minutes, an ordinary drowning person must have attempted to breathe during the first minute of submersion, and at the first inspiration filled the lungs even to the minutest tubes and air vesicles. This would leave from fifteen to nineteen minutes to spend under water after breathing had stopped. In view of this, can any one live whose head has been continuously submerged for twenty minutes?

L. H. M., Clear Lake, Wash.

ANSWER.—If our correspondent will reread the discussion in the resuscitation symposium, he will see that the sentence which he quotes from Dr. Henderson's remarks does not refer to the question of the length of time a man may be submerged and then resuscitated. It refers to the importance of adhering strictly to one method and to one unvarying set of directions in teaching the prone pressure method of artificial respiration. In amplification of that sentence, Dr. Henderson continued:

> It is essential that we should adhere to one method, and that there should be no divergence from the officially published directions. It is not perhaps of extreme importance technically whether the hands are placed exactly one way or another, but uniformity of directions is of extreme importance in the training of school children, of the police and fire departments, of the men working at the bathing beaches, and so on. As we now have it, the method is the result of a very long series of investigations and of a large amount of practical experience, and I hope, therefore, that the medical profession will stand solidly back of exactly the procedure that the electric light industry has adopted.

As regards the length of time that a man may be completely submerged and then revived: It appears that considerable variations occur; but as the efficiency of the methods of resuscitation employed has varied greatly, it is difficult to decide whether the variations in the results are in the victims or in the procedures employed by the rescuers. It is probable that absolutely complete submergence for ten minutes, and perhaps less, may so far impair the respiratory center or bring the heart so completely to a standstill as to make the possibility of resuscitation doubtful. In cases in which persons are resuscitated after being in the water for fifteen or twenty minutes, it is probable that submergence is incomplete and that some partial breaths of air are obtained. The practical point at which Mr. Maclachlan's remarks were aimed was that men who have been in the water for fifteen or twenty minutes have been resuscitated when the efforts were continued for an hour or more. Less persistence on the part of the rescuers, and a less efficient method of artificial respiration would have resulted in the loss of these lives.

SUPRAPUBIC CYSTOTOMY A MAJOR OPERATION

To the Editor:—1. Will you not refer me to some authoritative classification of operations, into major and minor operations? Is a suprapubic cystotomy, under a local anesthetic, in which a 4-inch incision is made, the peritoneum retracted, and a drain tube sutured in, a major operation? 2. What would be a reasonable fee for such an operation as is described above and for the care of the patient for three weeks afterward? The patient was a widower, aged 84, with no children and no kinsfolk. He left an estate worth $250,000.

———, M.D., Mississippi.

ANSWER.—1. Some operations are obviously always major or minor operations. A considerable number, however, may fall sometimes into one group and sometimes into the other, according as circumstances render the operation dangerous. A hard and fast classification is hardly practicable. Probably a suprapubic cystotomy, as described, should be regarded as a major operation under any circumstances, but certainly so in a patient 84 years old.

2. To determine whether a given charge for a suprapubic cystotomy and for three weeks' after-care of the patient, in a medium-size community in Mississippi, is reasonable would require a knowledge of the charges for like service customary among surgeons of professional standing equal to that of the operator in the case under consideration, in the same general neighborhood and at approximately the same time. It would require, too, a knowledge of the circumstances and duration of such visits as were incident to after-care. In the absence of this knowledge, it is impossible to suggest a reasonable fee. Moreover, many other considerations might enter, known only to the patient and his physician, which might have a bearing in an individual case.

MENTAL SYMPTOMS OF "GASSING"

To the Editor:—I am searching for information and hope that you may be able to give me some. The case in question is strange to myself and surrounding colleagues. The patient was gassed in a deep well. I believe that the gas was methane. He was in the well between three and five minutes, and was not conscious when taken out. Oxygen was given for thirty minutes. The patient was gassed September 8, and is apparently well in all respects except mentally; the mind is sluggish, yet he can understand, but cannot talk or write. In every other way he is all right.

A. E. BRICKER, M.D., Downers Grove, Ill.

ANSWER.—The patient was probably "gassed" by stepping into an atmosphere of "oxygen-want." In other words, carbon dioxid had largely replaced the oxygen of the atmosphere and perhaps some of the nitrogen in the depth of the well. From the severity of the symptoms, the amount of carbon dioxid present was about 10 per cent.; i. e., that much oxygen had been displaced, leaving the remaining oxygen as low as from 10 to 12 per cent.—a degree greatly embarrassing

respiration, even to the extent of unconsciousness. It is known that high percentages of carbon dioxid have no particularly embarrassing qualities, provided enough oxygen is present for respiration (from 10 to 14 per cent. or more). It is highly improbable that there was any methane (CH_4) in the well, as this gas is lighter than air, and is seldom known to accumulate in wells or low places if there is any opportunity for escape by diffusion upward. It occurs, if in large quantities, invariably in connection with mines. While methane is very explosive, it is nontoxic (the same as carbon dioxid). In "fire damp," as it occurs about mines, methane replaces oxygen to a degree often dangerous to life. The condition of severe asphyxia that was suddenly produced undoubtedly accounts for the state of unconsciousness and the mental sequelae. It is not clear from the description whether the man has a real aphasia or if his inability to read and write is merely due to his mental sluggishness. In either case, little can be expected from any kind of medicinal treatment. Rest and general good care will probably see him through, as the prognosis is reasonably good if the man otherwise is organically sound.

CARNRICK'S ORGANOTHERAPY

To the Editor:—To be sure that it has not escaped your notice, I am enclosing a page from G. W. Carnrick Company's 253 page "Text Book" on Organotherapy in General Practice, in which the facts are twisted very neatly to suit their own convenience. It seems a pity that this free booklet should be sent out to the profession with such statements as are included in several places.

John C. Parsons, M.D., Creston, Iowa.

Answer.—The "Text Book" to which our correspondent refers is essentially an advertising sheet sent out by the G. W. Carnrick Company and evidently intended to promote the use of the pluriglandular products which this firm exploits. Our correspondent marks the following, which appears under the heading "Insuline in Treatment":

"For the routine treatment of diabetes of the mild or moderately developed type, extending over years, the daily or twice daily injection of an expensive product has failed to meet the requirements. Oral administration appears to be the only satisfactory method for this long continued treatment in the home. Numerous extracts have been prepared for oral administration and have proved successful in reducing blood sugar and in correcting the disturbed carbohydrate metabolism. Berkeley, Wallis, Achard and others have prepared extracts which gave good results clinically, and Banting and Best and Murlin have given experimental evidence of the value of such extracts by administration through the stomach. No pancreas preparation, however, has received as extensive clinical trial as Trypsogen."

An insulin preparation, effective when administered orally, would be most desirable, but there is no evidence to indicate that such a preparation has been evolved. The caution made editorially in The Journal, Sept. 1, 1923, still holds good: "It is desirable to give wide publicity to the current limitations of a most promising therapy, since unscrupulous venders of drugs are already attempting to distribute just-as-good pancreatic and antidiabetic preparations that are recommended for oral use."

GOMENOL

To the Editor:—Would you kindly give me the English name and composition of a "10 per cent. Oleo gomenolado?" This prescription was obtained by a patient of mine while in Portugal last summer, and he has asked me to find out what it is so as to have the prescription filled here.

Morrell Simpson, M.D., Bedford, Ind.

Answer.—The inquiry probably refers to a 10 per cent. solution of gomenol. Gomenol is a volatile oil obtained from a plant related to the plant that yields oil of cajuput. It is very similar to oil of cajuput, and its therapeutic properties probably are also like it. Gomenol comes as a proprietary from France and is exploited under extravagant claims (The Journal, April 4, 1914, p. 1110). The name given does not indicate the character of the solvent used to prepare the solution.

ETIOLOGY OF JOB'S BOILS

To the Editor:—I should like to know what the disease was that affected Job when we read in Job 2:7, "So went Satan forth from the presence of the Lord and smote Job with sore boils from the sole of his foot unto his crown."

G. E. Y., M.D.

Answer.—Boinet, writing in the *Bulletin* of the Academy of Medicine (**83**:57 [Jan. 13] 1920), ascribes to leprosy Job's "sore boils from the sole of his foot to his crown." This article was abstracted in The Journal, March 6, 1920, p. 704.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 11-12. Sec., Regular Board, Dr. J. W. Walker, Fayetteville. Sec., Homeopathic Board, Dr. George M. Love, Rogers. Sec., Eclectic Board, Dr. C. E. Laws, Fort Smith.

California: Sacramento, Oct. 20-23. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.

Connecticut: New Haven, Nov. 11. Sec., Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Hartford, Nov. 11-12. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford.

Maine: Portland, Nov. 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, Nov. 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

Missouri: Kansas City, Nov. 10-13. Sec., Dr. Cortez F. Enloe, Capitol Bldg., Jefferson City.

Nevada: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

New Jersey: Trenton, Oct. 21-22. Sec., Dr. Alex Macalister, State House, Trenton.

South Carolina: Columbia, Nov. 11. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Texas: Dallas, Nov. 18-20. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

West Virginia: Charleston, Oct. 28. Sec., Dr. W. T. Henshaw, Charleston.

Louisiana June Examination

Dr. Roy B. Harrison, secretary, Louisiana Board of Medical Examiners, reports the written examination held at New Orleans, June 12-14, 1924. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 57 candidates examined, 56 passed and 1 failed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1922)	90.6
Tulane University	(1923, 2) 87.5, 90.6, (1924, 48) 84.1, 85.3, 85.6, 86.2, 86.3, 86.5, 86.6, 86.9, 87.1, 87.3, 87.4, 87.6, 87.8, 88.1, 88.3, 88.7, 88.7, 88.8, 88.9, 88.9, 89, 89.1, 89.1, 89.5, 89.7, 89.7, 90.2, 90.2, 90.3, 90.7, 90.7, 90.7, 90.7, 90.8, 90.9, 90.9, 91, 91, 91.3, 91.3, 91.6, 91.6, 91.7, 91.7, 92.1, 92.2, 92.5, 93		
St. Louis University		(1924)	88.7
Cornell University		(1922, 2)	87.7, 89.5
Meharry Medical College		(1923)	82.4
University of Vermont College of Medicine		(1909)	82.3

College	FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Little Rock		(1911)	64.5

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia		(1916)	Georgia
Vanderbilt University		(1915)	Tennessee

Nebraska June Examination

Dr. J. D. Case, superintendent, Nebraska Board of Medical Examiners, reports the written examination held at Omaha, June 9-11, 1924. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Eighty-two candidates were examined, all of whom passed. Six candidates were licensed by reciprocity, and 1 candidate was licensed by endorsement of credentials. Four osteopaths were examined, all of whom passed. One osteopath was licensed by reciprocity. Of the 34 chiropractors examined, 26 passed and 8 failed. Three chiropractors were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Creighton Medical College	(1924, 32) 79, 80, 82, 82, 82, 82, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 87, 88, 89		
University of Nebraska	(1924, 8)* 83, 84, 85, 85, 85, 85, 86, 86, (1924, 40) 80, 80, 81, 81, 81, 82, 82, 82, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 88, 88, 88, 88		
University of Bonn, Germany	(1920)† 79, (1922)† 82		

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1902)	S. Dakota
Northwestern University		(1923)	Illinois
Rush Medical College		(1922)	Illinois
Keokuk Medical College		(1903)	Iowa

Omaha Medical College	(1899)	S. Dakota
University of Cincinnati	(1920)	Ohio

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Harvard University		(1921)	N. B. M. Ex.

* These candidates have completed their medical course and will receive their M.D. degrees on completion of a year's internship in a hospital.

† Graduation not verified.

Book Notices

DIE FUNKTIONSPRÜFUNG DES AUGES MIT EINEM ANHANG PHYSIOLOGIE UND PATHOLOGIE DER PUPILLE FÜR STUDIERENDE UND PRAKTISCHE AERZTE. Von Medizinalrat Dr. W. Wick, Dozent an der medicinischen Akademie und Oberarzt der Akademie-Augenklinik in Düsseldorf. Paper. Price, 5.40 gold marks. Pp. 146, with 90 illustrations. Berlin: S. Karger, 1924.

If properly translated, this booklet might well serve as the textbook of a six weeks' night school course in optometry; but as a text "für Studierende und praktische Aerzte" it lacks the proper balance. The first part, devoted to optics, is well done. The following fifty pages deal with refraction and are well printed. They should be a delight to the optometrists, for the only mydriatic even hinted at may be found in the statement that atropin should be used at times in refractions on children. Spasms of accommodation and other indications of cycloplegia are dismissed as lightly as is done by those refractionists who are legally forbidden to use "the deadly nightshade" and other necessary drugs. The technic of perimetry is not so bad, but the interpretation of the perimetric findings, the one thing that can be of enormous aid to the medical man, is treated as were sex problems in the mid-Victorian age. A separate chapter is devoted to the pupil and its reactions, and this is the best part of the whole pamphlet. The only objection is that there may be too much ophthalmic detail in it for the man in general practice. Details of other functional tests of the eye are lacking entirely. In view of the several excellent books of this character that have been on the market for some years, it would seem that this book is entirely superfluous.

MODERN METHODS OF TREATMENT. By Logan Clendening, M.D., Assistant Professor of Medicine, Lecturer on Therapeutics, Medical Department of the University of Kansas. With Chapters on Special Subjects by H. C. Andersson, M.D.; J. B. Cowherd, M.D.; Carl O. Rickter, M.G.; F. C. Neff, M.D.; E. H. Skinner, M.D.; and E. R. DeWeese, M.D. Cloth. Price, $9 Pp. 692, with 77 illustrations. St. Louis: The C. V. Mosby Company, 1924.

This new book on therapeutics may be a sign of the times. It aims to present a more adequate balance of remedial measures than is generally achieved by books on therapeutics. "Most of them . . . devote space to drugs or to some other form of therapy to the loss or exclusion of other forms." This book includes a study of drugs—only those of practical importance—biologic remedies, dietetics, heat and cold, mechanotherapy, electrotherapy, radiotherapy, climate, psychotherapy, and such miscellaneous subjects as punctures, transfusion, the fitting of corsets, and the therapeutic use of adhesive tape. Occupation therapy seems to be missing. In Part II, the treatment of various diseases is taken up, in general in quite a practical manner.

One regrets to find numerous errors in the very prescriptions that are set down as examples in prescription writing: e. g., *"acetphenitidium"* instead of *"acetphenetidini"* or *"soda"* instead of *"sodii"* or *"aqua"* instead of *"aquae."* Had the author employed English in prescription writing throughout as he does in some places, these blemishes would have been largely avoided. The statement that "Laxol" is "castor oil and honey" is obviously not only erroneous, but ignores the "Aromatic Castor Oil" of the National Formulary in favor of a proprietary preparation. Classifying "aromatic syrup of rhubarb" as a mere flavoring vehicle for children is wrong.

The author answers the question, "Why should therapeutics be taught as a separate course," by pointing out that therapeutics is more than pharmacology and that it is more than the uninteresting and choppy accounts of treatment that appear in even our best textbooks on medicine. Moreover, therapeutics is taught inadequately by present-day teachers of clinical medicine, who have so much to say and demonstrate about etiology, pathology, symptoms, diagnosis and prognosis that little or no time is left for an adequate discussion of treatment.

"This present defect can be helped by the establishment of a definite teacher of therapeutics. He should have a place on the hospital staff; the wards should be open to him; he should be able to select patients and demonstrate on them methods of treatment—how to give an enema, a Brand bath, an intravenous saline, a transfusion, how to dilate an esophagus, the clinical administration of digitalis—using the material for no other purposes than the teaching of therapeutics. He should have a laboratory for teaching purposes with hydrotherapy, electrotherapy and mechanotherapy equipment and diet kitchens and bedrooms adjoining. Only by such a scheme can therapeutics be legitimately raised to its rightful position. It has a rightful position, for after all, we are artisans, and cure is the art we practice."

"In writing the various chapters of this book I have tried to show that therapeutics is related to pathology and physiology. She may be a poor relation, but a relation she is. Her hell is paved with good intentions: surely she means well, and if she is not so attractive as her more beautiful sisters, it should also be remembered of her that she has not been so pampered. She has not often been granted beautiful laboratories and expensive equipment. She has watched more often at humble bedsides, and her eyes are tired with waiting and her hands are chapped with menial tasks."

The last paragraph may also serve as an example of the author's style, who deprecates the style of deadly boredom in which most books on therapeutics are written. Another commendable feature is the occasional quotation of the very words of those clinicians who first struggled with the problems involved in the use of a given method of treatment.

A DICTIONARY OF TREATMENT INCLUDING MEDICAL AND SURGICAL THERAPEUTICS. By Sir William Whitla, M.D., D.Sc., LL.D., Consulting Physician to Royal Victoria Hospital. Seventh edition. Cloth. Price, $10. Pp. 1100. New York: Paul B. Hoeber, Inc., 1924.

This reference handbook may be warmly recommended to the general practitioner. The fact that it is the seventh edition since 1891 shows in itself that the book has found a gratifying reception. Practical information may be confidently expected on what to do in the many exigencies of practice, from abdominal wounds and abortion to writers' cramp, yaws and yellow fever. The chief disadvantage of this book for the American practitioner lies in the fact that the nomenclature and preparations of the British Pharmacopeia are employed, and that unfortunately there does not exist as yet any great degree of uniformity in the pharmacopeias of the two great English speaking nations.

THE CURE OF PULMONARY TUBERCULOSIS BY REST AND EXERCISE. By Hugh M. Kinghorn, M.D. Cloth. Price, $2.50. Pp. 169, with 12 illustrations. Boston: Richard G. Badger, 1924.

This rather contradictory title might be improved, perhaps, by the elimination of the word "exercise," for the book is a strong brief for the treatment by rest. Sixty-five of the 158 pages of reading matter are given over to a historical presentation of the early treatment of tuberculosis by the pioneers in this field, Brehmer, Dettweiler and Trudeau. While quite interesting, from a biographic standpoint, much of the material might well have been omitted. The author justly places Dettweiler in advance of Brehmer, whose ideas of rest as a therapeutic factor seem to have been almost nonexistent; in fact, Brehmer seems to have been, primarily, a hydrotherapist. The author also takes up the exercise methods of Paterson of Frimley, England, and reaches a logical conclusion that the strenuous work therapy of the latter has little to commend it, judging from ultimate results. Paterson relies more on the general body conditions than on those of the diseased lungs; consequently, while his patients showed striking improvement for a time, and were returned to remunerative work, they did not last. Kinghorn justly says that the object of treatment of the tuberculous is to repair a diseased lung, not to build up a strong muscular condition. The book contains much detailed information regarding the application of the rest cure, which may be safely used as a guide. The author's extreme caution in allowing exercise, after a prolonged period of rest, may not appeal to some, as it calls for a greater expenditure of time than the average patient can or will devote to his cure; nevertheless, the position is correct, and those who elect to follow the teachings set forth will not go wrong.

Miscellany

MEDICAL ETHICS IN CHINA

That ethics varies with latitude and longitude is regretted by E. M. Merrins (*China M. J.* **38**:679 [Aug.] 1924) who presents the peculiar situation of China with regard to medical ethics. There are no ethical standards for physicians, and there is no body to enforce principles that might be advanced. Chinese practitioners are mostly the purveyors of superstition, with a small admixture of those trained abroad or at home in modern medical science. Ancient customs embrace or condemn views quite opposite to occidental standards. Not only physicians, but the people as a whole would not look favorably on principles which are accepted in Europe and America. The winning away of another's patient and the caustic criticism of the physician previously attending a patient are common and expected conduct in China. Most native Chinese physicians rely on a few remedies, which may be of value, but the composition of which is a closely guarded secret. Even the foreign-trained native physicians consider it proper to manufacture and sell their own drugs. These may bear statements that they will cure certain diseases. Advertising by physicians is quite customary. A recovered patient expresses his gratitude in the public press, or by bearing through the streets to the office of his benefactor a tablet inscribed with laudatory tributes to the physician's skill and attainments. It is the more difficult to uproot personal advertising because some foreign physicians resident in China advertise in Chinese newspapers. Ethical views of the population with regard to the destruction of human life are also at variance with our own. Birth control propaganda, new, but flourishing in China, is not receiving the active interest of physicians. There is evidence that infanticide, in the case of new-born illegitimate girl babies, is condoned, and even if the child has lived for some time is lightly punished. However, the infant's death is usually due to intentional neglect by midwives rather than to the act of a physician. Merrins believes that a simple statement of ethical conduct should be formulated by the China Medical Missionary Association, for the guidance of its members.

COMMUNITY CONTROL OF RICKETS

A three year demonstration of modern methods in the prevention of rickets is being conducted in the Dixwell Avenue district in New Haven by the U. S. Children's Bureau in conjunction with the department of pediatrics of the Yale University School of Medicine and with the cooperation of the department of health, the Visiting Nurse Association, the Organized Charities Association and other agencies. The first year of this demonstration has just been completed. The population of this district is 14,766, of which 1,372 are children under 5 years of age. Of 349 babies born in the district since the demonstration started, 281 have been examined and 83 per cent. of them are still under observation. In addition to this group, 454 older children have been examined to serve as control cases. Of the latter group, 396, or 87 per cent., have shown clinical evidence of rickets. Of the babies born in the district under study and given cod liver oil and sunlight systematically, only 29 per cent. have shown evidence of rickets. However, forty of the sixty-seven babies showing rickets have shown only roentgen-ray evidence and no clinical signs; fifteen have shown both clinical and roentgen-ray evidence of rickets, and twelve clinical evidence only, which means that only 12 per cent. of the total number of 234 babies have shown definite clinical evidence of the disease, whereas 17 per cent. more have shown roentgen-ray evidence but no clinical evidence. Since these babies range from 1 to 13 months of age and the opportunity for development of the disease has not come to all, these figures can be considered only as an indication of the trend. The first year's work, however, seems clearly to indicate that rickets begins insidiously in the very first months of infancy, and that it develops just as early in breast fed babies as in artifically fed babies.

Medicolegal

Insanity a Bodily Disease

(American Nat. Ins. Co. v. Denman (Texas), 260 S. W. R. 226)

The Court of Civil Appeals of Texas, in affirming a judgment in favor of the plaintiff, in this action brought by Denman, by his next friend, says that the defendant issued its accident and health insurance policy to Denman. One provision of the policy was that the company would pay the insured at a certain rate per month, for a period not exceeding six consecutive months, during which he should be necessarily and continuously confined in the house and therein regularly attended by a physician and wholly disabled and prevented by "bodily disease or illness" from performing any and every duty pertaining to any business or occupation. Subsequently, the insured was adjudged insane and from that time was confined as an inmate in the state asylum. The defendant was notified of his insanity, but denied any liability to him. The sole question involved in this litigation was as to whether insanity is a "bodily disease or illness." The defendant contended that insanity is a mental disease and not a bodily disease, and that the words "bodily disease or illness" contained in the policy did not embrace, and it was not the intention that they should embrace, insanity. There was nothing in the statement of facts showing what caused or might have caused the insured to become insane.

More has been written by medical experts about insanity, and it has caused more litigation, than any other one subject. As to what insanity is and its causes are unsettled questions. The English jurist, Lord Blackburn, once said:

> I have read every definition of insanity which I could meet with, and never was satisfied with one of them, and have endeavored in vain to make one satisfactory to myself. I verily believe that it is not in human power to definitely define insanity.

Some of the writers say insanity is a mental disease and not a bodily disease. The weight of opinion among the medical fraternity is that insanity is hereditary or caused from some disease; that if a person who has had a normal mind becomes insane, it is caused by some bodily infirmity or disease which weakens certain portions of the human anatomy and finally strikes the brain.

It is, indeed, difficult to disconnect and dissociate the mind and brain of a man from his body. It is hard to imagine a stout, healthy man becoming insane without some bodily disease. It is a known fact that many diseases develop into or cause insanity. A bodily disease may not be a mental disease, but a mental disease is necessarily a bodily disease. The body is not composed simply of the hands and feet and eyes, but is composed as well of the brain and the mind and the reasoning power. Unquestionably, a foot or a hand disease is a bodily disease. This court sees no reason why a brain disease would not be a bodily disease. The court is of the opinion that the words, "bodily disease or illness," as used in the policy, embrace insanity. Rehearing denied.

When Physician's Duty Under Express Contract Ends—Compensation Not Allowed for Completing Treatments

(American Mut. Liability Ins. Co. v. McDiarmid (Ala.), 99 So. R. 849)

The Supreme Court of Alabama, in reversing a judgment obtained by plaintiff McDiarmid, a physician, says that it can find, on the undisputed evidence, no basis for any recovery of compensation by him. He testified that he had entered into a written contract with the defendant company, in considertion of receiving 17.5 per cent. of the premium paid to that company by certain car works, by which contract he was to treat on account of the insurance company all cases of accident occurring to the employees of the car works, arising out of their employment. This arrangement, it was specified, was to include full treatment until the injured employee was able to return to work. The plaintiff testified further that the contract expired, Dec. 31, 1921, and that he had been paid the agreed compensation for that time; but that between Jan. 1 and May 16, 1922, he treated or com-

pleted treatment of certain employees of the car works who had been injured prior to Jan. 1, 1922. He said that, January 12, he had a conversation with a representative of the defendant company in which he told the representative that these men had been brought over and had to be treated, whereas his contract had expired, and asked who would pay for the treatment, to which the representative replied that the responsibility therefor was the plaintiff's. It was to recover compensation for this treatment that this action was brought. The plaintiff contended that his obligations under the written contract ceased on its expiration at the end of 1921, not merely as to the treatment and care of employees who were injured after that time in 1922, but also as to the further treatment and care of those who had been injured pending the operation of the contract.

Manifestly, if the plaintiff could recover at all, it must be either under the terms of the written contract made between him and the defendant company, and remaining in full force and effect during the period of his alleged service, or it must be under a new contract, expressed or implied, for the services alleged to have been rendered. If his view of the matter, that his obligations under the contract ceased at the end of 1921, was correct, it was of course fatal to any right of recovery under the contract; and the evidence showed that he was not claiming under the written contract, but only on on an implied obligation on the part of the defendant to pay him a reasonable compensation for the services rendered by him. But the evidence showed without dispute that when the plaintiff inquired of the defendant's agent as to the performance of these services, the agent informed him that it was the plaintiff's duty to perform them under the written contract, and that the defendant would not pay him for it. It is well settled that the law will not imply a promise against the express declarations of the party to be charged, made at the time of the supposed undertaking. The reason for this rule is that all contracts must be based on the mutual agreements of the parties. The difference between an expressed and an implied contract is merely in the mode of proof, the elements being the same, and where mutual agreement is contradicted by the statements of either party at the time, there being no expressed agreement, there can be no implication of contractual undertaking by that party.

It was not necessary to construe the written contract further than to say that it clearly did not impose on the defendant any obligation to pay for these services any more than 17.5 per cent. of the premium paid to the defendant company by the car works, which, as the plaintiff testified, had already been paid to him in full. It resulted that the plaintiff showed no right to recover, and that the trial judge erred in giving an affirmative charge for the plaintiff. Instead, the affirmative charge should have been given for the defendant, as requested.

Chiropody Not Practice of Medicine—Use of "Dr."

(State v. Armstrong (Idaho), 225 Pac. R. 491)

The Supreme Court of Idaho, in reversing a judgment of conviction of the defendant of having unlawfully operated and prescribed for a disease, injury and deformity for a fee, says that it cannot agree with the contention that the chiropodist practices medicine and surgery. Chiropody has long been recognized as an independent calling. It is a well known fact, of which the court will take judicial notice, that physicians and surgeons do not, and will not, do the ordinary work of the chiropodist. Under a reasonable interpretation, chiropody does not involve the practice of medicine or of surgery, either major or minor. To require a chiropodist to obtain the education and license of a physician and surgeon, an osteopath or a chiropractor is not a reasonable regulation, and is utterly unnecessary for the protection of the public. So far as the Idaho statute of 1923 relative to the practice of the healing art affects the practice of chiropody, the act is unconstitutional and void. But nothing that the court has said must be taken to mean that the act is void, generally speaking. So far as it affects the branches of the healing art licensed by the statutes, and all callings or practices sufficiently related to fall within them, it is valid.

On petition for rehearing, the court explains that it did not intend to give the impression that chiropodists could practice orthopedic surgery or treat diseases of the feet. The court decided that certain of the acts committed by the defendant, namely, removing corns and callouses, constituted the practice of chiropody within its generally accepted definition. This the court regarded as so well established that it could take judicial notice of it. As to the treatment of Morton toe, another of the acts charged, the court was not prepared to say that it fell within the scope of chiropody. Nor, on the other hand, was it prepared to say, as a matter of judicial knowledge, that it constituted the practice of medicine and surgery. Further evidence was required to answer that question, and the case was remanded for a new trial on that issue. To the removal of corns and callouses as constituting the practice of chiropody not inhibited by the statute may be added the treatment of the nails ordinarily practiced by chiropodists, but the court does not think it possible to go any further at present in laying down a general definition or rule.

The stipulated facts that the defendant had on the entrance door of her office the printed letters, "Dr. Armstrong, Chiropodist," and caused to be inserted in two newspapers printed matter describing her by the prefix "Dr.," and stating that she was engaged in the practice of chiropody and electrolysis, the court does not consider sufficient to establish a violation of the statute, it not being the intent of the statute to make the use of the word "doctor" unlawful, unless it is done in such a way as to imply that the person is a licensed practitioner of one of the learned branches of the healing art.

Confidential Character of Evidence Must Be Shown

(State v. Masters (Iowa), 198 N. W. R. 509)

The Supreme Court of Iowa, in affirming a judgment of conviction of the defendant of larceny, says that an individual, called in the record a doctor, received a call to go to a place where he found the defendant in a small house or shack, lying on a cot, and two other men with him. He saw a Cadillac roadster at the shack, with the top down, and a hole through the left-hand door on the side where the steering wheel was, and with blood on the floor of the car; and in the car was a shoe with a hole in the upper part. He returned to the shack the next day, and no one was there. At the time of the trial the defendant walked with a limp. Two assignments of error related to the admission of the testimony of two witnesses. The argument was predicated on the statement that these witnesses were physicians and engaged in treating the defendant, and that they were incompetent, under Section 4608 of the Iowa Code, to testify to any confidential communications entrusted to them in their professional capacity and necessary and proper to enable them to discharge their functions. But it was a mere matter of inference that these witnesses were physicians. There was no evidence to that effect. They were spoken of as doctors in the record, and addressed as such in their examination, and one of them was requested to call at the place where the defendant was found in a shack. The other testified to having seen the defendant at his mother's home on a certain date. Furthermore, if it be assumed that these witnesses were physicians, there was not a word of testimony that either of them was called or employed to treat the defendant professionally or ever examined or treated him. The burden of showing the existence of a confidential relation is on the party objecting to the competence of a witness by reason of such relation. Besides, if it should be conceded that these witnesses did sustain a confidential relation with the defendant, neither of them testified to anything in the remotest degree in the nature of confidential communications or to anything learned in a professional capacity. The statute does not prohibit a physician from testifying in any and all cases in which his patient may be a party. He is prohibited from testifying only to any confidential communication properly entrusted to him in his professional capacity and necessary and proper to enable him to perform his duty, and to facts that are learned by him in the discharge of his duties from his observation and examination of the patient, when they are of a confidential nature, and necessary and proper to enable him to discharge his professional duty. The testimony of these witnesses did not come within the prohibition of the statute.

Society Proceedings

COMING MEETINGS

American College of Radiology and Physiotherapy, Chicago, Nov. 12-14. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Secretary.

American College of Surgeons, New York, Oct. 20-24. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, Detroit, Oct. 20-23. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Secretary.

Association of Military Surgeons of the United States, San Antonio, Tex., Nov. 13-15. Major E. E. Hume, M. C., U. S. Army, Army Medical Library, Washington, D. C.

Central States Pediatric Society, Rochester-Minneapolis, Oct. 30-31. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

District of Columbia, Medical Society of, Washington, Dec. 3. Dr. C. B. Conklin, Medical Science Building, Washington, Secretary.

Interstate Post-Graduate Assembly of America, Milwaukee, Oct. 27-31. Dr. W. B. Peck, 82 Stephenson St., Freeport, Ill., Managing Director.

New York and New England Association of Railway Surgeons, New York, Oct. 25. Dr. Horace H. Le Seur, Batavia, N. Y., Secretary.

Radiological Society of North America, Kansas City, Mo., Dec. 8-12. Dr. M. J. Sandborn, 844 College Ave., Appleton, Wis., Secretary.

Southern Medical Association, New Orleans, La., Nov. 24-27. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, Charleston, S. C., Dec. 9-11. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Western Surgical Association, French Lick Springs, Dec. 4-6. Dr. Harry P. Ritchie, Lowry Building, St. Paul, Secretary.

INTERNATIONAL CONFERENCE ON HEALTH PROBLEMS

Held in Kingston, Jamaica, July 23-31, 1924

(Continued from page 1195)

Tuberculosis in the Tropics

SIR JAMES K. FOWLER, Brompton, England: Tuberculosis apparently is on the increase among the native inhabitants of most of the British colonies. The evidence is overwhelming that when tuberculosis is introduced into a country hitherto free from it, the natives manifest a degree of resisting power much inferior to that shown by inhabitants of countries in which it has been present for countless generations. To speak of the natives as the immunes and of the Europeans as the nonimmunes is to ignore obvious facts. There have been fatal cases among the natives in every epidemic in West Africa, not only in the past but also in recent times. The mortality rate among them as compared with that obtaining among the Europeans is no doubt nearly always much lower, and the type of the disease is as a rule milder, but they are not immune. We are all agreed that racial and family characters of body and mind, endless in number and variety, may be transmitted from one generation to another through countless ages from father or mother to son or daughter. The laws governing such inheritance are being slowly but surely worked out. I account for the greater resisting power of the natives of certain countries to yellow fever by assuming that if all the minute details referred to above can be contained within their chromosomes, so also can a greater or lesser resisting power to disease, acquired by the contact of countless generations with that disease, be there and be transmitted. One individual may have a high or a low resisting power to disease in general, whereas another may have a high or a low resisting power to a special disease, and such special liability may be evidenced by certain characters of the body and of the mind. I am not suggesting that the disease itself is transmitted, but among those physicians who have had a lifelong experience with tuberculosis I have found little divergence of view as to the existence of individuals of the type just referred to, nor have they any doubt that in England it is a type that is now steadily diminishing in numbers. Some families, Nature's masterpieces, are endowed with such a high degree of resisting power that they persist through many successive centuries without manifesting any inherited tendency to disease. I do not believe in the deliberate exploitation of immunization by means of vaccinating doses of dead or attenuated tubercle bacilli as a method of creating an A 1 population. I would rather strive in every possible way to improve the physique of the nation and thus to increase the resisting power of the people to disease, including tuberculosis. The fall in the death rate from pulmonary tuberculosis in Great Britain began before modern sanitary measures had had time to operate, and it will be accelerated in that and other countries when governments appreciate to the full that the provision of healthy homes for the people is a matter far transcending in importance any other with which they are called on to deal.

Whether notification of tuberculosis should be enforced must depend in the tropics on the local conditions and on the degree of civilization to which the people concerned have attained. It is useless if the notifications, as is too often the case, are received only a short time before the death of the patient or after his decease. The value of notification, apart from statistical inquiries, depends on the use that is made of it in dealing with contacts and in removing them from unhealthy surroundings. I have never encountered a case of pulmonary tuberculosis in which I have been able to satisfy myself that any good had resulted from the administration of tuberculin, but I have seen many in which any chance of recovery that the patient possessed had been destroyed by its use. In temperate climes, sanatoriums at high altitudes present an undoubted advantage. In the tropics, the conditions at such altitudes, if they are available, may or may not be suitable to a native population. The sanatorium should be situated on the most healthful site available, and should be the nucleus of a settlement. Hospitals should be provided for advanced cases and such patients as do not respond to sanatorium treatment or who break down when engaged in the industries. Training in industries carried on in hygienic workshops involves in temperate climes less exposure to climatic conditions which may be harmful than open air occupations; but in the tropics such considerations may not apply.

My advice to any colony disposed to grapple seriously with the tuberculosis problem is to destroy its slums and to start a tuberculosis settlement. Any country that rejects compulsory vaccination and retains its slums must pay for smallpox hospitals and tuberculosis settlements. The tuberculosis problem is to a very large extent a housing problem in all parts of the world.

DISCUSSION

DR. HERBERT C. CLARK, Tela, Honduras: At Ancon, tuberculosis in the morgue and in the board of health laboratory was second only to pneumonia in causing death; it took precedence over dysentery, railway accidents and drowning, even in the construction period. In the West Indian laborers, who composed the bulk of our population, cases diagnosed as tuberculosis usually lasted but a few months as compared to a few years in the case of persons suffering from the same disease from the north temperate zone, and at death these people would show merely an infection in the spleen, liver, etc.

DR. WILLIAM M. JAMES, Panama: With us, tuberculosis causes almost always 100 per cent. mortality, and as far as my own cases go, which I have been able to follow from start to finish, it has caused 100 per cent. mortality. The most I have been able to do in Panama is to keep patients alive long enough to get them out of the country. While we can control plague and malaria and yellow fever, the economic conditions that lead to bad housing and to improper nourishment are so difficult of control that I see no possibility whatever of any improvement in them for many years to come. That is why I was sorry to hear Fowler state that there is very little hope in immunization. I must admit that while that is also my own point of view, I had hoped that there was some prospect of relief for these poor people. I think a plan of greatest value is the scheme he has outlined of a tuberculosis settlement instead of sanatoriums, to protect the public and to prevent the spread of infection. If in a climate such as that of Panama there is any way we can help these people I think we should adopt it, for our cases cannot follow any proper treatment for tuberculosis. There are economic reasons for this which are absolutely beyond the control of the physician. The patients themselves seem to look on a positive diagnosis with mingled resignation and despair, and place themselves in the hands of God rather than in any treatment they can find.

SIR THOMAS OLIVER, Newcastle-on-Tyne, England: Sir James Fowler told us that in 100 postmortem examinations

he found in the lungs indications of tubercle in only 9 per cent. of the bodies. In our hospital the pathologists tell me that in 75 per cent. of the bodies there are signs of tubercle obsolescent or otherwise, and if my memory serves me aright, when the results were published of the postmortem examinations made at the morgue in Paris a few years ago, in at least 90 per cent. of the bodies were found illustrations of obsolescent or active tuberculosis. It would be well if before accepting these variations in statistics there was some uniformity of opinion as to what constitutes tubercle as seen by the naked eye, although if even this was decided on the difficulty would not entirely disappear. Sir James remarked that he had not obtained good results from tuberculin. I cannot go quite the full length Sir James has gone in this direction, for in several cases I have had very good and lasting results. One needs to be careful in the selection of patients to whom one is going to give tuberculin. In lung cases the results may not always be successful, but in patients whose glands are affected and surgical removal objected to, I have found that the administration of tuberculin has given good results. I am not therefore disposed to set aside altogether the use of tuberculin in tuberculosis. As bearing on the question of the relationship of tuberculosis, bad housing and poor feeding, I need only refer to what happened in Paris after the Franco-Prussion War. For years after the war there was an influx of patients—mostly young people—into the hospitals, a very large proportion of whom were suffering from tuberculosis. It was the opinion of the physicians then that these patients were the outcome of the trying conditions of life in Paris during the siege, for many of the people had to live in cellars badly ventilated and had to resort to all kinds of garbage for food.

DR. W. E. DEEKS, New York: May I add a hopeful word in regard to cases of tuberculosis? The colored man, it has been my experience, is more prone to tuberculosis than the white man. For the Americans, however, who have came to the tropics and contracted tuberculosis, I have invariably adopted one course, and with one exception it has invariably had brilliant results. I have been sending all our patients to Silver City, Mexico, and am still doing so. We have been able to cure all our patients, except one man who was very ill. I had a letter from him five years afterward, but he must have died soon after that, as I have not heard from him since. Our patients generally stay two years, and come back to the tropics then and remain well. The only advice I give them is to balance their diet. I think that the dry climate and the generally increased metabolic activity of high altitudes have a wonderful effect on them.

DR. ROLAND C. CONNOR, Panama: On the Isthmus of Panama we have so far not provided any place where pulmonary tuberculosis patients can be properly treated, except in the ward no provision has been made for the care of the tuberculous convalescent whereby he can enjoy fresh air and sunshine. We have confined hospital treatment to a tuberculosis ward in the isolation building, and it has apparently been the wish of the authorities that we keep the patient just as short a length of time as possible and avoid overcrowding on account of limited bed space. We formerly had a health officer of Panama who was very enthusiastic regarding the question of tuberculosis. He saw that the overcrowding and poor ventilation problem in Panama was a great one, and he at once, with the authority that he had, began to have the houses ventilated by cutting windows so that the people could get fresh air. His work went along all right until he reached the section owned by wealthy men in Panama who had influence and who had a good deal to say about his work. All at once his work ceased. He was transferred to a local regiment for duty and immediately supplanted by another medical officer who dropped the work, and the conditions are the same in the old houses as they were formerly. The new houses are being constructed on better plans. It has seemed to me that the heads of health departments everywhere have not done all they could do in their efforts to control this disease, probably owing to a lack of money. It is well known by physicians who have lived in the tropics that the inclination of the negroes and the mixed breeds, Spanish and Indians, is to close up at night, shutting all the doors and windows, so that no night air may enter if it can possibly be avoided, and tuberculosis will remain a serious problem until these obstacles are overcome by proper housing. The only thing we can do at present is to send the patients who are able to go to a sanatorium in the western part of the United States, where we do get good results. In advanced stages, all we can hope to do is to prolong their lives until they can make the trip to the United States, and under proper treatment there they often live many years. I advise all patients to reside permanently near or in the same climate as that in which they experienced the arrest of their disease.

DR. MIGUEL ARANGO, Barranquilla, Colombia: The mortality caused by this disease in some of the large cities of Colombia is as follows: Barranquilla, 1.90; Bogota, 2.00; Cartagena, 1.74; Santa Marta, 0.54; Medellin, 1.70 per thousand inhabitants. In the great majority of cases, the disease is found in pulmonary form, as the other forms occur with less frequency. Some time ago, I made two maps of Barranquilla. In one I marked with red points the cases of death from tuberculosis, and in the other the various zones according to the accumulation of the inhabitants in each hectare. It happened that the cases of tuberculosis and the degree of accumulation runs in a parallel course; that is to say, the greater the accumulation of the people in a zone, the greater the number of cases of death from tuberculosis.

SIR JAMES KINGSTON FOWLER, London: The method of treatment adopted in the United States is very much the same as that followed by us in the treatment of our patients. It is impossible, however, to carry out this method in the treatment of the industrial classes. I think that artificial pneumothorax gives promise of relief to that class which they never enjoyed in the past.

The "Blinding Filaria" of Guatemala (Onchocerca Caecutiens, Brumpt, 1919)

DR. FRIEDRICH FÜLLEBORN, Hamburg: In 1915, Dr. Robles found on the Pacific slopes of the volcanic ranges of Guatemala in a quite narrow strip of country, between 600 and 2,000 meters of altitude, many persons (in some places up to 97 per cent. of the population) on whose scalp were fibroma-like nodules about the size of a nut, containing a convolute of filariae. He associated them with certain chronic troubles of the eye (keratitis, etc.), stating that the sight of people who had been practically blind for a long time was improved as if by a miracle in a few hours after the excision of the filaria cysts, and cured in a few days. He also believes that the same parasite produces a certain type of erysipelas, known in the country as erisipela de la costa. Later, Pancheco Luna, Calderon and other physicians of Guatemala confirmed these results. Not only were the native Indians but also white people successfully treated in the same manner. Mora also reported a case of chronic mental disease apparently cured in ten days after the removal of a parasitic cyst of the occiput. According to Brumpt, who investigated Robles' material, the nematode coiled up in the nodes is an *Onchocerca* (reaching in the female the size of about 0.5 meter), and, so far as the morphology is concerned, it is quite indistinguishable from *Onchocerca volvulus*, R. Leukart, 1893 of tropical West Africa. But, considering the fact that the African form is found only in about 1 per cent. on the scalp, whereas by far the majority of the nodes of *Onchocerca* from Guatemala are so located, he regards the latter not merely as a biologic variety but as a new species, calling it Onchocerca caecutiens, the blinding *Onchocerca*. Skin affections like pseudo-ichthyosis or gale filarienne do not seem to be caused by *O. caecutiens;* but Robles, the discoverer of the parasite, brings it in connection with the erisipela de la costa, confined just to the *Onchocerca* district. According to Robles, the erisipela de la costa begins as an acute febrile erysipelas, restricted usually to the face and head, in its chronic stage leaving a hard swelling of the skin characterized by a livid greenish coloration. Guerero thinks that the affection is myxedema. It seems quite possible that an obstruction of lymphatic vessels (as in *Filaria bancrofti)* in *Onchocerca* would cause a predisposition of the tissue for bacterial invasion; and, so, for erysipelas; and

on the other hand *Caecutiens microfilariae* like those of *Volvulus*—probably accumulating also in the connective tissue of the skin—could give rise, possibly through a toxic effect, to swellings of the skin, as does apparently the *loa* in the case of calabar swellings. The *Caecutiens* carriers seen by us seemed to be perfectly healthy persons and, although one admits that *Onchocerca* can give rise to eye troubles, the proposed prophylactic removal of the nodes of all affected people does not seem necessary, especially when the authors agree that in already chronic cases with severe visual defects the operation will still restore it promptly. Some attempts to substitute the surgical removal of the nodes by the more simple technic of cocain injection into the parasitic cysts did not give a clear result regarding the death of the parasite. Intravenous injection with antimony preparations apparently did not influence the parasites. The transmitters of *Onchocerca* may be arthropods sucking not only blood but also the juice of the tissues. The epidemiologic statements of Robles make it probable that in the case of *Caecutiens* the transmitter is feeding only during the daytime. Robles thinks it may be a species of *Simulium*—"coffee-flies." *Onchocerca gibsoni* of the Australian cattle seems to be transmitted by *Tabanidae*.

DISCUSSION

Dr. Aldo Castellani, London: I have not had personal experience of *Onchocerca* in America, but I have seen this condition in Africa, and in a general way, I am in complete agreement with Professor Fülleborn. As regards craw-craw, I quite agree with him that the term has been applied to different skin conditions. In a number of cases, the so-called craw-craw is itch or merely scabies. In many other cases will be found *Trichophyton* and *Epidermophyton*. Finally, one finds cases in which no organism of any kind has been discovered, and to these cases Daniels and I have applied the term coolie itch. I am very much interested in the treatment of *Onchocerca* and filarial conditions in general. I quite agree with Professor Fülleborn that as yet no treatment has been found that will kill the microfilariae in the blood. Arsphenamin, neo-arsphenamin, antimony and potassium tartrate and many other drugs have been tried, but in my experience the results have always been very poor or completely negative.

Dr. Friedrich Fülleborn, Hamburg: Maybe in some cases which seemed to improve after the excision of *Onchocerca* nodes, it would not be easy to exclude autosuggestion, although autosuggestion could not play a part in the cases of practically blind people who recovered sight in a few days after the excision of the nodes. From these cases it seems clear that there must be some connection between improvement of vision and excision of the nodes, although the nature of this connection is difficult to understand.

Control of Intestinal Protozoa by Means of Changes in Diet

Dr. Robert W. Hegner, Baltimore: Carnivorous animals are very rarely infected with intestinal protozoa; a carnivorous diet is unfavorable to the giardias and trichomonads of rats; a carnivorous diet may also be unfavorable to these flagellates in man; and *Giardia lamblia, Trichomonas hominis* and *Chilomastix mesnili* are probably the real etiologic factors of "flagellate diarrhea." Whether other changes in diet might have similar results is yet to be determined, as is also the effects of a carnivorous diet on the intestinal ciliates and amebas of man. Intestinal disturbances are particularly prevalent in the tropics, but how frequently they are accompanied by protozoa in the digestive tract is unknown. The situation offers an interesting and profitable opportunity for observational and experimental work.

DISCUSSION

Dr. Charles A. Kofoid, Berkeley, Calif.: Several interesting experiments have been made in our laboratory by Dr. J. F. Kessell, bearing on this matter of diet with reference to human intestinal amebas. We have confirmatory evidence that modifications in diet serve to reduce the amount of protozoan infections other than flagellates. It is well known to protozoologists that vegetable-feeding insects, especially *Hemiptera*, fishes and rodents, are heavily infested with flagellates. Carnivorous fishes and insects are not thus heavily infected. Plant-feeding mammals are almost universally infested with protozoa. We had one very interesting case of heavy infestation by *Giardia*. The patient himself was intelligent and very much interested. He felt that he knew that there was an interesting relation between his symptoms and the abundance of the flagellates. He claimed that honey introduced by the duodenal tube would greatly reduce the flagellate infection by *Giardia*. I don't know how true this was. In the matter of the flagellate infections of man, I wish to direct attention to a seemingly tropical type of trichomonad infection due to *Pentatrichomonas*. We have had four cases under observation for a series of months, and in one instance for several years. All of them were serious, the patients having chronic diarrhea with sometimes as high as twenty stools a day. One of the patients is a colonel in the United States Army with tropical service; one is from Hawaii; one an officer with contacts with Annamese troops in France, and one from New Orleans. They were all of them pure, heavy infestations of *Pentatrichomonas*. There are reports of serious trichomonad diarrheas on the Mexican border, in Peru and in Venezuela. These well may be due to *Pentatrichomonas* rather than to *Trichomonas* as reported by Escomel and others. It is advisable in diagnosis of these cases to count the flagella. In all these trichomonads there is one flagellum that beats in the rhythm of the undulating membrane, while the remainder (three in *Trichomonas* and four in *Pentatrichomonas)* beat independently and at a different rate, so that in attempting to count flagella one must always seek for one more flagellum than one can readily count. Clinicians in the tropics have an opportunity to settle this matter as to whether or not the trichomonads are really serious infestations, and to determine whether or not *Pentatrichomonas* is pathogenic.

Dr. Seale Harris, Birmingham, Ala.: From the point of view of nutrition, it may be harmful to feed a strict protein diet, or very high protein diet, over a very considerable period of time. An almost complete protein diet may be given for a few days, or long enough to eliminate the flagellates from the intestines; but I fear that, given over a long period of time, it might result in serious kidney trouble or other nutritional disturbances. When an excess of proteins is ingested, the liver tries to take care of it, and the end-products of imperfectly metabolized proteins are eliminated through the kidneys, and that may cause trouble. Dr. E. V. McCollum told me that, after feeding rats on a 65 per cent. protein diet for a long period, he found distinct changes in the kidneys which suggested that a high protein diet might result in permanent kidney damage. The human body needs about 75 gm. of protein in the twenty-four hours, and a diet very much in excess of that might give trouble. It should be remembered that 58 per cent. of proteins may be burned as carbohydrates, so that to get more than 75 gm. of protein, a diet of from 150 to 200 gm. of proteins might be given without any harmful results. If we eliminate the carbohydrates, the inclination would be to make up the number of calories by means of fats. An excess of fats is liable to lead to acidosis, and when a person is placed on a high protein, high fat diet, it should be a routine matter to examine the urine daily for diacetic acid and acetones. Fat produces this acidosis, and fats burn in the fire of the carbohydrates. Therefore, unless carbohydrates are given with fats, acidosis may occur. I have observed a number of cases of intestinal flagellates, which are very wide-spread in the United States, among individuals who have had no diarrhea; but in other cases a heavy flagellate infection seems to be the cause of severe diarrhea. In such cases we have found that there is an absence of hydrochloric acid in the stomach, and the use of dilute hydrochloric acid is helpful in combating the flagellate diarrhea.

Dr. Charles C. Bass, New Orleans: I think that the fact of the influence of diet on the intestinal flora rather than the fauna is already pretty well established. It is well known that by diet we may change the intestinal flora almost at will. It is interesting that by using a certain kind of diet, such as lactose and dextrin, we may establish an aciduric intestinal flora in which the intestinal contents become acid,

similar to the reaction of the feces of the normal nursing baby. The more completely carnivorous the diet, the greater the tendency to neutral or alkaline reaction of the intestinal contents. A completely carnivorous diet changes the intestinal flora entirely, and there is every reason to think that it might have similar effect on the fauna. It may be, therefore, that the effect of a carnivorous diet on intestinal flagellates reported by Dr. Hegner results from the change that occurs in the reaction of the intestinal contents.

DR. R. B. NUTTER, Tela, Honduras: In vaginal smears from twenty-five patients, flagellates were demonstrated in 50 per cent. The parasites were found in patients with vaginal discharge. In two instances of positive findings, the vagina was sterilized with 3 per cent. iodin solution for operation, and four days after operation there seemed to be no diminution of flagellates. I have also observed that flagellates increase in dysentery patients when on a milk diet.

DR. ROBERT W. HEGNER: Both Dr. Kofoid and Dr. Nutter have mentioned a mild diet with respect to these intestinal flagellates. Dr. Magath of the Mayo Clinic said that patients with flagellate diarrhea are usually put on a milk diet. They always got worse and then were sent home. I tried a milk diet on rats, and this diet did not seem to cause any decrease in the number of flagellates. That, I believe, is similar to the experience that Dr. Nutter had with his patients. There may be a difference between young and old rats. Perhaps if the rats are not infected it is impossible to infect them if they are kept on a milk diet, but I do not believe that a milk diet is satisfactory in clearing the intestinal tract of the flagellates. Regarding the danger from a meat diet, I know almost nothing at all about nutrition. The diet that I am suggesting was made out for me by Dr. McCollum and Miss Simmons, and it is advocated that it be used for only a week or two and then discontinued for a time and then taken up again. I do not believe that treatment will cause any damage. As I suggested in my paper, and as Dr. Bass states, the intestinal flora is very easily changed within four or five days. In a rat that is ordinarily fed on a carbohydrate diet, the bacterial content changes from ninety-nine of the acidophilous type of bacteria to one of the putrefactive type to ninety-nine of the putrefactive type to one of the acidophilous type, and I think it is this great change in the bacterial content that accounts for the disappearance of the flagellates in the bowel. This problem was undertaken not in order to find some means of decreasing the number of flagellates or curing flagellate diarrhea; it was undertaken with the idea of determining what effect changes in the environment in the intestine would have on the protozoa living in the intestinal tract. One of the results of this work, if it is carried out further by physicians who have control of patients over a long period, will be a decision with respect to whether the flagellates are present in abundance in the intestine because there is an intestinal disturbance which is favorable for the growth and multiplication of the flagellates or whether that disturbance is due to the presence of the flagellates. I do not hold that there is any such thing as flagellate diarrhea. I do not know whether these flagellates cause any intestinal disturbance. My work so far indicates that the flagellates do cause intestinal disturbance, but this has not been proved by any means.

Analysis of Bacillary Dysentery Cases in Ancon Hospital During the Last Five Years

DRS. ROLAND C. CONNOR and LEWIS B. BATES, Ancon, C. Z.: There had been sporadic cases of bacillary dysentery in Ancon Hospital for years, but previous to 1918 at no time had routine stool cultures been made in all cases of enteritis and enterocolitis. Since the summer of 1918, cultures have been taken in all such cases. This paper covers the five year period from 1919 to 1923, both inclusive. During this period sixty-six cases of bacillary dysentery were diagnosed and treated in Ancon Hospital. There were nineteen deaths in the series. All the deaths occurred in infants and children under 6 years of age. During this five year period, no cases of bacillary dysentery were reported in the annual report of the chief health officer of the Panama Canal, from Santo Tomas Hospital, city of Panama. Nor were any cases of bacillary dysentery reported by the private physicians in Colon and Panama. Laboratory examinations in the case of notifiable diseases are made free of charge at the board of health laboratory of Ancon Hospital for these physicians. However, practically no advantage has been taken of this so far as dysentery is concerned. Only four of our cases were due to Group I, or the Shiga organism. These were sporadic cases, did not have the severe bloody flux usually seen in this type of dysentery, and had no fatalities. Thirty-nine cases were due to the Flexner, or Group II, type, and eighteen to the Group III, or Sonne type. Our treatment in this series of cases was for the most part symptomatic. All suspects were isolated in the ward away from the other patients, and the beds tagged "Dysentery precautions." This precaution was taken until at least three negative stool cultures were obtained. Saline laxatives were given in small doses for two or three days, followed by large doses of bismuth subnitrate. A liquid diet consisting of soups, broth, consommé, milk diluted with barley water, and albumin water was given the adults. Milk and barley water, and later acidulated milk (usually acidulated with hydrochloric acid) and orange juice was given infants and children under 2 years of age. Saline irrigations of the lower bowel were given once or twice daily.

DISCUSSION

DR. H. J. NICHOLS, Washington, D. C.: Bacillary dysentery is much more wide-spread and more important than we realize. In the United States Army, in the last year, we have had outbreaks in almost all our geographic divisions. Bacillary dysentery occurred either sporadically or in epidemics, mostly of the second group. The same is true in the Philippines. In fact, I think at the present date the problem of bacillary dysentery is the principal one in the Philippines and over there, in the way of diagnosis, I believe they have developed the cytologic method—the examination of the cells of the stools as a rapid diagnosis. This would make the possibility of serum treatment more prompt. In this connection I should like to emphasize the desirability of examining the gallbladder at necropsy or the duodenal contents during life as a possible site of the carrier lesion. In regard to the examination of healthy persons, I think we should at least go as far as to examine the food handlers. This is difficult, for if the housewife can get a good servant that is all she is interested in, but I believe medical officers should examine servants for bacillary dysentery, amebic dysentery and skin diseases. It is the only way I can see that we can make any advance in handling the situation. One epidemic that I saw in the docks of New York last year developed from the kitchen. There was a case of bacillary dysentery among the dockhands. A great many flies were about the place. The kitchen on the boat was not screened, and the flies were over everything. Out of a crew of about twenty men on the small boat, there were thirteen cases of bacillary dysentery, some of them very mild but some very definite, and the stool cultures revealed the organism.

DR. HENRY ROSE CARTER, Birmingham, Ala.: In handling the sanitation around camps during the late war, one of our main difficult stations was Newport News. Roughly, about 550,000 troups were shipped from there. The camps there were not so large, but it was a port of embarkation. At this place, whoever was concerned with the preparation of food at restaurant, boarding house or hotel, was examined to see whether he was a carrier of typhoid or dysentery. We found a fair number—possibly as many as seven. We had no authority to prevent their employment, but we had authority to paste a card on the house stating that no man in uniform was allowed to take his meals there on account of the presence of a carrier of dysentery or typhoid, as might be the case. The warning, of course, was also a guard to the rest of the public. What we prevented, I do not know. It was simply a place for passing through, and if any soldier had contracted dysentery or other disease from these carriers, he would be aboard ship and we should not know about it. The results, therefore, were not determined. We required three negative examinations, only two of which could take place in the same week, before any one could be employed,

without causing the posting of a warning card, for handling food.

Dr. William H. Park, New York: We all agree that unless a serum is potent for the strain causing the attack, it is useless. What it is necessary to remember is that the manufacturer has a habit of putting "polyvalent" on a serum without saying what strains it is potent for. It generally means that it is highly potent for one strain or two strains, and nothing more. We must therefore know the type of organism we are dealing with in these cases, and what antibodies are present in the serum. If I remember aright, the Asia Minor type of dysentery bacillus was quite different from any of those encountered in Europe and America. We should also have serum for the endemic types stored in advance. This may be kept in the icebox for a year, if necessary. It obviously cannot be imported from a distance without delay, and there may even be no potent serum anywhere in stock. The manufacturer should be compelled to put on the vial for what types of bacilli there are in the serum potent antibodies. The physician must know what type or types of bacilli he is dealing with if he is to use a serum intelligently.

Dr. Paul W. Wilson, Washington, D. C.: It may be of interest to know of the epidemic in Haiti, which has taken such a large toll of life during the last two years, in view of the fact that much Haitian labor goes to other ports. This dysentery, according to the opinion of Dr. Lane and Dr. Bennett, has been endemic there a great number of years, and only in the last two years did it take on a more toxic form. It was a peculiarity, when it did become toxic, that many of the patients had an almost clinical picture of cholera and died within seventy-two hours. It may be of interest to medical officers in other ports to know that many of these Haitian emigrants may be carriers of bacillary dysentery.

Dr. R. B. Nutter, Tela, Honduras: Two years ago in Honduras we had an epidemic of bacillary dysentery, and about half of the laborers in one district were incapacitated. We had no facilities for making cultures at that time. The disease spread very rapidly, but was easily controlled by sending all the patients with diarrhea to the hospital, and camp police to enforce the use of the latrine. That was the only important epidemic in our division.

Dr. William H. Park, New York: In 1902 we had the only large epidemic of dysentery in the region of New York that I know of. Within six weeks there were 1,500 cases in the villages just north of the city. These cases were etiologically about equally divided between the Shiga and the Park-Hiss or Y type bacillus, and many were due to both types; the cases were almost equally severe, whether combined or pure infections. At the time this epidemic occurred, the city was enlarging Riker's Island by filling in with garbage. One laborer developed a mild dysentery of the Flexner type, and as he was unable to do the hard work, they put him in the kitchen. In about ten days nearly all the laborers had severe dysentery. The discharges showed abundant bacilli of the Flexner type. It seems to me from the foregoing instances alone that it is evidently a mistake to speak of the Shiga type giving rise to the toxic form of dysentery and the Flexner, Park, Strong, etc., types to the nontoxic form. The Shiga bacillus, on the average, gives rise to the most toxic cases, but no one who saw the cases just mentioned would call them nontoxic. The symptoms in the outbreaks referred to were just as severe in the cases due to the paradysentery types as to the Shiga type. I think that the suggestion to get away from names for these types is a laudable one, but I do not like the name pseudodysentery bacilli. I prefer to call these paradysentery strains. As to the making of cultures, we found a small rectal tube with an opening on the side very useful. After giving a cleansing douche, the tube is passed up into the bowel and a culture made by rubbing a swab against the mucous membrane pressed into the tube opening. In this way often an almost pure culture could be obtained. In New York City, where we have practically no dysentery of children, yet the paradysentery types can occasionally be detected in their discharges, I should not want to go about among little children making cultures and isolating the positive cases. In the tropics it may be different. I wonder how many of these cases of dysentery carriers which later became severe were found by cultures. Does Dr. Connor think it right to call a case dysentery simply because the dysentery bacillus is found? You might just as well call a healthy child a case of tonsillitis or pneumonia if you found in the throat mucus the pneumococcus. If you hunt in chronic intestinal cases for one of the paradysentery bacilli, or even the Shiga bacillus in infected territory, of course you will occasionally find them in cases in which you would not expect to. It is not fair to call these cases of dysentery. I wonder whether the hospital releases all cases only on a number of negative cultures. I believe in having these examinations made in all hospital cases, but the information obtained should be utilized with great care. I doubt whether a health department should make cultures regularly of healthy people with the exception of food carriers.

Dr. M. J. Rosenau, Boston: We have comparatively little bacillary dysentery in New England. Outside of infantile diarrhea, bacillary dysentery is mainly an institutional affair in our climate. It is preventable and controllable. Of course, this is outside the problem of infants. During the war we examined over 4,000 specimens of feces from healthy male adults, and bearing on the carrier problem, I may say that in this particular study we failed to find any one of the dysentery bacilli.

Dr. Aldo Castellani, London: It seems to me that the Sonne bacillus is identical or very similar to *Bacillus metadysentericus* which was first isolated by me in 1911, and again in 1915, in cases of dysentery in patients coming from Albania and also in certain cases at Taranto. If the two organisms should be identical, according to the rules of nomenclature the correct name will be *B. metadysentericus*. A nasoparasite often found in bacillary dysentery is a most peculiar germ. The colonies on colored mediums are identical with the colonies of the true dysentery bacilli. For instance, on MacKonehe's medium the colonies are white. This germ is most polymorphic. It may develop under three principal types: the bacillus; the comma or vibrio type, and finally the spirochetic type, long spiral forms being present. At first I thought I was dealing with two or three germs which were living or growing together; but by plating and replating I came to the conclusion that it was the same germ which at times produces bacillary forms, at other times vibrio and long spirillar forms. I called this germ *Vibriothrie zeylanica*. When I was in Ceylon and I had cases of bacillary dysentery in children and could not get the dysentery serum, my line of treatment was practically always the same: I used to give a mixture consisting of compound rhubarb powder, 1 or 2 drams (from 4 to 8 gm.) and chloroform water, 2 ounces (60 c.c.), one teaspoonful every two hours to a child 2 years of age. It was most interesting to see how quickly the symptoms of dysentery disappeared. Unfortunately, the same treatment in adults did not succeed, and therefore I never published the method, though I occasionally referred to it in discussions. Recently the method has been rediscovered in British East Africa, and several medical men there have apparently got good results also in adults.

Dr. Roland C. Connor, Panama: Our answer to Dr. Park's inquiry as to whether the cases were discharged without previously examining and seeing that they had negative stool cultures is that they were discharged only after three negative stool cultures, taken on two separate days, the best we can do under the circumstances. We cannot keep patients recovering after mild infection in the hospital too long a time. With regard to the routine stool cultures in the hospital in diarrhea diseases, especially in the children's wards, I believe that to be a good precaution. As Dr. Park states, in hospitals it is probably all right, but in private practice it is impracticable. What we are trying to do is to get the physician to think in terms of bacillary dysentery whenever he has to deal with a gastro-intestinal upset, especially in children. If one is called to see such a case in a child or an adult, let him call for a specimen of stool and see it himself. That is the only safe way. It is a fact that some of the cases on our records did not show pus and blood in the stools. These patients died of other diseases

on which bacillary dysentery was ingrafted, but such patients might be carriers. In hospitals, one should view with suspicion diarrheas, especially those with blood and mucus, but in any case think of bacillary dysentery and be ready to deal with it as soon as possible. With regard to Dr. Nichols' question: Food handlers are examined when employed, but at what intervals after employment I am not able to say. I am afraid we are in the same position as others. The employer takes for granted that all is well and thinks the first examination is sufficient until the employee gets sick. Obviously, examinations should be made at intervals of, say, three or four months, especially in places like Ancon Hospital, where there is every facility for making these laboratory examinations. I was glad to hear Dr. Castellani's suggestion regarding treatment with rhubarb. I shall not forget it and shall probably have opportunity to put it in use, especially with children. The question arises, What can we do to keep down the infection? As shown by our records in Ancon Hospital for five years, we had several cases due to ward infection despite the fact that there has been fairly close supervision. Any case of gastro-intestinal upset occurring in cases in the hospital, especially infants and children, under treatment for other than diarrheal disease, should create suspicion, and one should at once think of bacillary dysentery and take proper measures at once to rule it out.

(To be continued)

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Archives of Neurology and Psychiatry, Chicago

12: 249-358 (Sept.) 1924

*Cerebral Function in Learning. V. Retention of Motor Habits After Destruction of So-called Motor Areas in Primates. K. S. Lashley, Minneapolis.—p. 249.
*Tumor of Hypophysis: Case. J. H. Lloyd and F. C. Grant, Philadelphia.—p. 277.
Decerebration. II. An Acute Decerebrate Preparation. L. J. Pollock, and L. E. Davis, Chicago.—p. 288.
Significance of Certain Factors for Development of Heredofamilial Diseases of Nervous System. L. F. Barker, Baltimore.—p. 294.

Cerebral Function in Learning.—Lashley destroyed the greater part of the precentral gyrus of both hemispheres in monkeys which had been trained previously in habits of manipulation and visual discrimination. When the animals recovered from paralysis, it was found that they showed perfect retention of these habits. From this it is concluded that the so-called motor areas are not directly concerned with the performance of complex learned activities. The motor impulses of conditioned reflexes must descend from other areas of the cerebral cortex than the precentral gyri, and the latter cannot be regarded as the source of impulses to "voluntary movements." Destruction of the corpus striatum subsequent to recovery from diplegia produced only the usual symptoms of striate lesion without recurrence of the symptoms of cerebral paralysis. Recovery from paralysis was therefore not due to vicarious function of this nucleus. The evidence for considering the precentral gyrus as a part of the kinetic mechanism for reflex control of spinal posture and for maintenance of excitability of lower motor centers is summarized.

Tumor of Hypophysis.—The tumor in the case cited by Lloyd and Grant was of extraordinary size, about 9 cm. long by 5 cm. in diameter. The microscope showed it to be an adenoma. The parts involved by it were not only the sellar and infundibular region, but the interpeduncular space, the pons, cerebellum, cerebellopontile angle, temporal lobe and the bones of the base of the skull. In spite of this wide extent, it presented a limited symptomatology. There was an early right hemiparesis, which caused it to press on the left cerebral peduncle. There must have been internal hydrocephalus also, caused by a complete blocking of the third ventricle and indicated also by the xanthochromia. The Bárány tests seemed to indicate an involvement of the vestibular paths, and this can be explained by the fact that the tumor caused pressure on both the pons and the cerebellum. There was no bitemporal hemianopsia, but only a concentric narrowing of the form fields, which appeared later. Symptoms which were conspicuous by their absence were such as would have pointed to the interpeduncular space, the cerebellopontile angle, the pons, cerebellum and left temporal lobe. All these parts were invaded, yet there was no paralysis of the third, fifth, sixth or seventh nerve. There were no marked cerebellar symptoms, unless it was a slight swaying walk, easily confused with the hemiparesis; nor were there any aphasic symptoms, such as might have been caused by a lesion of the left temporal lobe. Altogether, the case is remarkable as showing the extensive involvement that may be caused by a hypophysial tumor without a corresponding complication of symptoms. The Fröhlich syndrome was the most reliable sign and led to the correct diagnosis.

Archives of Surgery, Chicago

9: 237-484 (Sept.) 1924

*Surgery Alone and With Roentgen Ray in Exophthalmic Goiter. E. P. Richardson and J. H. Means, Boston.—p. 237.
*Congenital Hydronephrosis. E. V. Hahn, Indianapolis.—p. 256.
*Operative Treatment of Recent Fractures and Nonunion. H. H. Trout, Roanoke, Va.—p. 275.
*Carcinoma of Kidney. H. L. Kretschmer, Chicago.—p. 285.
Studies in Exhaustion. VII. Autointoxication. G. W. Crile, Cleveland.—p. 293.
*Malignant Tumors of Thymus. F. Helvestine, Jr., Charlottesville, Va.—p. 309.
*Hemolytic Streptococcus Gangrene. F. L. Meleney, Peking, China.—p. 317.
*Reaction of Bone to Various Metals. A. A. Zierold, Minneapolis.—p. 365.
*Fractures of Femur. L. C. Abbott, St. Louis.—p. 413.
*Shortening and Compensatory Overgrowth Following Fractures of Femur in Children. V. C. David, Chicago.—p. 438.
Twenty-Fourth Report of Progress in Orthopedic Surgery. R. B. Osgood et al.—p. 450.

Roentgen-Ray Treatment of Exophthalmic Goiter.—Evidence is presented by Richardson and Means as to the extent that previous roentgen-ray treatment of exophthalmic goiter influences surgery, and, in lesser degree, as to the extent that previous operation influences roentgen-ray treatment. It is suggested that the patient's general condition following ligation of the superior thyroid arteries, rather than the metabolic rate, should be the guide to the time of further operation. Ligation of the superior thyroid arteries appears to be slightly more effective in patients having previously had roentgen-ray treatment. There is no evidence as yet that the effectiveness of roentgen-ray treatment is increased by previous ligation of the superior thyroid arteries. The degree of benefit received from hemithyroidectomy is not increased by previous roentgen-ray treatment. Hemithyroidectomy, although occasionally curative, is not a desirable step in the surgical treatment of exophthalmic goiter. It should be followed as a rule by completion of the operation of subtotal thyroidectomy within a few months. The authors believe that myxedema is more likely to occur following subtotal thyroidectomy in patients who have undergone roentgen-ray treatment than in those who have not. The effect produced by surgery in the treatment of exophthalmic goiter appears little modified by previous roentgen-ray treatment.

Congenital Hydronephrosis.—In 15,800 admissions to the Robert W. Long Hospital, there were two cases of congenital hydronephrosis. The histories are reported by Hahn. One patient, aged 8, came to operation because of an enlarged abdomen for which a diagnosis of cystic tumor of the kidney had been made. On the fifteenth day after operation a thrombosis of the left leg developed. In twenty-three days, the swelling had subsided until the leg was almost normal in size, and the patient was discharged, afebrile and apparently cured. The second patient, aged 4 years, had a moderate enlargement of the abdomen. The diagnosis in this case also was cystic tumor of the right kidney. The child was discharged on the twenty-third day, apparently cured. In Case 1, no vestige of a ureter could be found. In Case 2,

no anomalies of position or blood supply were found to explain the hydronephrosis. The ureter showed a marked stenosis immediately below the ureteropelvic junction.

Treatment of Fracture.—An experience with thirty-two cases of nonunion following fracture leads Trout to the conclusion that the conversion of a simple fracture into a compound fracture is warranted only in the very exceptional case, and the employment of a nonabsorbable internal splint is an additional factor in the production of ununited fractures. These metal appliances should be removed even in the presence of firm bony union for they frequently give rise to late local trouble, such as osteomyelitis, and occasionally to constitutional symptoms, which disappear after removal of the foreign body.

Carcinoma of Kidney.—The four cases of carcinoma of the kidney reported by Kretschmer illustrate four different pathologic types. Preoperative diagnosis of nephrolithiasis was made, the presence of tumor not being suspected. These four cases illustrate several points in diagnosis: the ease and accuracy with which tumors of the kidneys may be recognized by the use of pyelography, even though the tumors are small; the ease with which tumors are overlooked, their existence not being suspected because of the presence of other very obvious lesions, such as stone; the value of complete, careful and accurate study in all cases of renal hematuria, and the varying pathologic types of renal carcinoma that may be met in a small series of cases.

Tumors of Thymus.—The two cases of thymic tumor reported by Helvestine come under the head of lymphosarcoma, according to the classification of Ewing. The first tumor resembled somewhat an infectious granuloma; while, in the second tumor, the small round cell predominated as in lymphosarcomas in other organs.

Hemolytic Streptococcus Gangrene. — Meleney reports twenty cases of this kind. The large majority of patients were males, probably because of their closer contact with dirt and their greater liability to injury. The extremities were chiefly affected. In 75 per cent. of the cases, the infection spread beyond the original site of infection to a neighboring part. The disease is characterized by its alarmingly rapid development. In some cases, the process at this time comes to a standstill of itself and the dead skin falls off, leaving a large ulcer with undermined edges and granulating base. In more severe cases, the process continues to advance rapidly until several large areas of skin have become gangrenous, and the intoxication renders the patient dull, unresponsive, mentally cloudy or even delirious. About this time, pulmonary symptoms and signs denoting bronchopneumonia or lung abscess may develop. Mestastatic abscesses may appear in any part of the body, but chiefly in the subcutaneous tissues. Positive blood cultures with hemolytic streptococcus were present in seven of seventeen cases in which cultures were taken. In three of the four fatal cases, there was a positive blood culture. Incisions should be made from the gangrenous area proximally and distally as far as the subcutaneous necrosis extends, but no farther. The gangrenous skin should be excised as soon as the line of demarcation has developed to a point where the dead skin can be removed without causing much bleeding. Immediately after operation, if it is possible, the part should be put in a hot water soak at from 40 to 42 C. (104 to 107.6 F.). Saline or antiseptic solutions seem to have no superiority over water. The heat produces a hyperemia and the toxic substances find easy exit into water. In most cases, amputation is quite unnecessary, because the infection is superficial. Bacterial studies and animal inoculations were made by Meleney.

Reaction of Bone to Metals.—The experiments recorded by Zierold appear to bear out Naegeli's conclusions. Gold, aluminum and stellite are readily tolerated by bone and tend to become encapsulated with but little hindrance to the reparative processes. They are inert materials, unaffected by the living cells and body fluids. Silver and lead are only slightly less tolerable to bone, but are easily corroded and evoke a slightly greater connective tissue response. Zinc goes into solution readily and causes a slight connective tissue stimulation. It also interferes with bone regeneration and does not become encapsulated by it. Nickel has a distinctly injurious effect on bone growth. Magnesium has little action other than as a connective tissue stimulant. If anything, it retards rather than accelerates bone production. Copper causes definite stimulation to bone production, although being slowly absorbed. Some specimens suggest that it may be toxic to the tissue in the immediate vicinity, but an active stimulant at a distance. Alloying copper and aluminum seems to perpetuate this toxic action but without its far-reaching irritant effect, for copper aluminum bronze frankly interferes with bone regeneration and tends to become extruded. Steel and, to a less degree, iron definitely inhibit bone regeneration. Steel, which is poorly tolerated and readily soluble, seems least suitable of all for bone prosthesis.

Fractures of Femur.—Abbott asserts that excellent results in the treatment of fractures of the shaft of the femur are directly dependent on the efficiency of traction and countertraction. The most efficient traction and countertraction are obtained by the use of calipers and the Thomas splint, after the method of Pearson. Malunited fractures of the femur, even those of several months duration showing tenderness over the callus, can be refractured by manipulation, and union with full length and accurate alinement can be secured by caliper traction on a Thomas splint. Manipulation and caliper traction can frequently be used to correct deformity and to promote union in cases of delayed union of the femur. In nonunion, it is a valuable adjunct as a preliminary to gain length before operative treatment. A protective weight bearing appliance should be accepted as standard in the treatment of all fractures of the shaft of the femur in adults. The Thomas walking caliper splint is the practical solution of the problem.

Compensatory Overgrowth in Fractures of Femur.—David emphasizes the fact that compensatory overgrowth of a shortened femur after the fracture which may be expected in a growing child is of extreme importance in further limiting operative interference in these cases. Another point of interest in treating these cases is that alinement of the fractured ends to prevent angulation, and extension to prevent overriding of the fragments are of greater importance than end-to-end apposition of the fragments. This is desirable, but union takes place without it, provided marked overriding is prevented. The late roentgen-ray study of fractures in which no end-to-end apposition was obtained shows a restitution of the shaft practically to normal.

Boston Medical and Surgical Journal

191: 521-568 (Sept. 18) 1924

*Case of Intracranial Aneurysm. R. Fitz, Boston.—p. 521.
Responsibilities of General Hospital in Control of Venereal Disease. O. M. Lewis, Boston.—p. 524.
Syphilis. C. B. Gay, Fitchburg.—p. 529.
Case of Granuloma Inguinale. T. P. Murdock, Meriden, Conn.—p. 539.
*Incidence of Hereditary Syphilis in Hospital Community. M. Wright, Newton Centre.—p. 536.
Transplantation of Tensor Fasciae Latae. H. C. Bean, Salem.—p. 540.

Intracranial Aneurysm.—Fitz reviews the clinical history of his case in which he had made a diagnosis of arteriosclerosis with hypertension, chronic myocarditis and a mild grade of chronic nephritis. The patient died. The necropsy report is given. The brain was of special interest. At the base there was a considerable amount of clotted blood. On the right side, the internal carotid artery opened into a saclike aneurysmal cavity measuring 16 by 13 mm. The aneurysm pressed on the optic chiasm and on the right optic nerve moving the chiasm slightly to the left of the midline. In reviewing this case, it is evident to Fitz that the diagnosis of cerebral aneurysm could logically have been made before death by one familiar with the disease as it is described by Symonds and Cushing. There were signs due to mechanical pressure of a tumor at the base of the brain as evidenced by loss of vision in the left eye: this was probably due to pressure of the aneurysm on the optic nerve. There were signs of generalized arteriosclerosis, hypertension and retinal sclerosis affording a proper background for a cerebral aneurysm. There were signs of leakage of blood from the aneurysm on two occasions, both evidenced by sudden attacks of unconsciousness and convulsions, both accompanied by subhyaloid retinal hemorrhages, or, at least, by large

extravasations of blood into the retina, and one known to be accompanied by the passage of free blood into the cerebrospinal spaces. While there was no unilateral oculomotor palsy with ptosis or occipitofrontal pain, with lowered sensitivity of the upper trigeminal skin field, which Cushing has emphasized, yet, with this exception, the entire case history and physical findings were very typical. One interesting point in the case, and one which neither Symonds nor Cushing mention, is the rapidity with which the retinal hemorrhages cleared up after the first convulsive attack. This observation may, perhaps, severe as a helpful point in differential diagnosis of future cases, for the retinal hemorrhages of nephritis or hypertension do not usually disappear in a few weeks' time. Another interesting question is why clinical signs of polycythemia should have been present at the time of the final rupture of the aneurysm.

Incidence of Hereditary Syphilis.—The records of 1,220 consecutive white admissions to the children's medical service of the Massachusetts General Hospital have been studied by Wright to determine the incidence of hereditary syphilis in these cases which for the most part were supposedly nonsyphilitic. A diagnosis of syphilis was warranted by the evidence in thirty-one cases, or 2.54 per cent. A provisional diagnosis of syphilis was warranted by the evidence in nine other cases, or 0.73 per cent., making the total forty cases, or 3.27 per cent. Based on these forty cases, the incidence of syphilis in children under 13 months was 5.84 per cent., while the incidence in children over 13 months was 1.71 per cent.

Canadian Medical Association Journal, Montreal

14: 779-902 (Sept.) 1924

Diagnosis of Healthy Heart. J. Parkinson.—p. 779.
Prostatectomy. J. Thomson-Walker.—p. 787.
*Effect of Popular Gynecologic Procedures on Future Child-Bearing of Women. J. O. Polak.—p. 797.
Postoperative Treatment in Gynecologic and Abdominal Surgery. F. McK. Bell.—p. 803.
Treatment of Diabetes Mellitus. E. P. Joslin.—p. 808.
Recent Advances in Endocrinology. J. B. Collip.—p. 812.
*Iodin in Treatment of Goiter. D. Graham.—p. 821.
Leprosy in Canada. J. D. Page.—p. 824.
Interpretation of Symptoms in Acute Abdominal Disease. A. Primrose.—p. 826.
*Unsuspected Hypertoxic Appendicitis. E. St. Jacques.—p. 831.
Acute Perforation of Stomach or Duodenum. F. B. Mowbray.—p. 833.
Anesthesia in Acute Abdominal Operations. W. Bourne.—p. 835.
*Hypertension and Its Relationship to Functional Activities of Vessels. W. Goldie.—p. 836.
Rôle of Bone Marrow in Primary Blood Diseases. A. G. Nichols.—p. 841.
Nontuberculous Pulmonary Infection. A. H. Gordon.—p. 850.
Bacteriology of Pulmonary Infections. N. M. Harris.—p. 854.
Chronic Suppurative Otitis Media with Fistula of External Semicircular Canal. A. A. Campbell.—p. 856.
*Aneurysm of Arch of Aorta. C. A. Peters.—p. 856.
Horn on Scalp. N. B. Freedman.—p. 857.
Intravenous Use of Mercurochrome in Infant Aged 3 Weeks. W. G. Campbell and F. T. Cadham.—p. 858.
Idiopathic Aplastic Anemia in Child. G. H. Agnew.—p. 859.

Effect of Gynecologic Operations on Child-Bearing.—Polak feels that too many women are operated on—many needlessly. Sterility operations give poor results and often have unfortunate sequelae. The gynecologic patient seldom has a complete diagnosis before operation is advised. When possible, operations in the child-bearing woman should be deferred until she has finished having children; in the interim, better obstetrics, more attention to postpartum care, and the judicious use of pessaries will keep these women comfortable. Every abdominal operation has its morbidity and is followed by some intrapelvic pathology and a small mortality. Greater care as to indications should be used before determining on cesarean section; and Polak urges that the gynecologist or surgeon should have an obstetric training before doing surgical operations on the child-bearing woman.

Iodin in Treatment of Goiter.—Graham endorses the use of compound solution of iodin in the treatment of diffuse enlargements of the thyroid. If adenomata are present the use of iodin should be discontinued and surgical treatment advised. In his experience, thyroidectomy following preliminary iodin treatment of cases of exophthalmic goiter gives more satisfactory results than when iodin is not used. If patients are operated on, iodin treatment should be continued during the postoperation period to lessen or prevent the danger of a thyroid crisis. Graham expresses the hope that in Canada, more particularly in the districts where endemic goiter is prevalent, measures such as the use of iodized table salt may come into more general use for the prevention of goiter.

Appendicitis.—St. Jacques is of the opinion that acute appendicitis imposes surgical intervention and the quicker the better. He agrees with Dieulafoy that "When appendicitis begins one cannot foretell the complications which may arise; the mode of onset, the temperature curve, this or that symptom can give no inkling as to the further course of the disease."

Hypertension.—Goldie states that hypertension, being merely a sign of disturbed relationship between the heart output and the peripheral outflow, is more likely to be beneficial than injurious in promoting a peripheral flow when faults in vessel wall and neurovascular action tend to impede the blood flow through the tissues. Hence, the treatment should not, except in cases of sudden rises in blood pressure, be primarily directed to the reduction of hypertension, but to the establishment of an efficient peripheral circulation by the regulation and strengthening of heart action, the correction of faults in correlation, the increase of the "play" in the vessels, and to the checking of the inflammatory processes in the vessel wall. Faulty circulation due to scars can only be treated by increasing the *vis a tergo* and lessening the amount of work required of the tissue affected.

Aneurysm of Aorta.—In Peters' case the clinical diagnosis was tumor of the cord at the third or fourth thoracic segment, chronic myocarditis and interstitial nephritis, arteriosclerosis, cystitis, and adenoma of the prostate. The postmortem examination showed chronic nephritis, hypertrophy of the prostate, and hyperthorphy and dilatation of the urinary bladder with cystitis. There was also hypertrophy of the heart, with some chronic myocardial changes and arteriosclerosis. The condition in the aorta was of unusual interest. The vessel was widely dilated from just above the aortic ring to the diaphragm, and showed the thinning and scarring characteristic of syphilis; in addition to this diffuse dilatation there were small saccular dilatations, and one of these had pressed on and eroded the lamina of a vertebra. Through this eroded area a small aneurysmal dilatation had bulged into the spinal canal and pressed on the spinal cord, involving the fourth thoracic segment.

Illinois Medical Journal, Oak Park

46: 153-228 (Sept.) 1924

Early Stages of Chronic Bronchitis. C. N. Meader, Denver.—p. 175.
Tumors of Breast. J. F. Erdmann, New York.—p. 178.
Operative Treatment of Goiter. E. P. Sloan, Bloomington.—p. 184.
Treatment of Goiter. C. A. Elliott, Chicago.—p. 190.
Treatment of Goiter. F. G. Dyas, Chicago.—p. 193.
Early Medical Practice in Illinois Country. J. H. Walsh, Chicago.—p. 197.
American Women and Paternalism. G. M. Martin, Louisville.—p. 201.
Operative Treatment of Ozena. N. Schoolman, Chicago.—p. 205.
Pneumoconiosis. E. A. Gray, Chicago.—p. 212.
Embolism of Mesenteric Arteries; Mucocele of Appendix; Mesenteric Cysts; Torsion of Great Omentum. C. U. Collins, Peoria.—p. 218.

South Carolina Medical Association Journal, Greenville

20: 215-238 (Sept.) 1924

Amebic Dysentery: Treatment. W. A. Wallace, Spartanburg.—p. 216.
Modern Dermatology. J. R. Allison, Columbia.—p. 219.
Radium Therapy. B. B. Steedly and F. M. Johnson, Atlanta, Ga.—p. 222.
Urology in Relation to Other Special Branches of Medicine and Surgery. M. H. Wyman, Columbia.—p. 227.

Surgery, Gynecology and Obstetrics, Chicago

39: 259-400 (Sept.) 1924

*Reconstructive Surgery of Hand. S. Bunnell, San Francisco.—p. 259.
*Undescended Testicle. C. G. Mixter, Boston.—p. 275.
*Carcinoma of Stomach in Young People. R. P. Sullivan, New York.—p. 283.
*Intravenous Injection of Gentian Violet in Phlebitis. W. F. Shallenberger, Atlanta, Ga.—p. 291.
*Abscess and Gangrene of Thyroid. M. Behrend.—p. 293.
*Cholecystogastrostomy and Cholecystoduodenostomy. F. G. DuBose, Selma, Ala.—p. 295.
*Sarcoma of Fallopian Tube. W. E. Dodd, Philadelphia.—p. 302.

*Motor Significance of Hemangioma. S. F. Stewart and M. E. Bettin, Los Angeles.—p. 307.
*Lymphangioma of Fallopian Tube. L. W. Strong, New York.—p. 318.
*Urinary Retention After Prostatic Abscess. R. E. Cumming, Detroit. —p. 320.
Subcutaneous Emphysema Complicating Diabetes Mellitus. H. H. Bell and H. C. Gaebe, St. Louis.—p. 324.
Fibroids in Puerperium. E. W. Fischmann, Chicago.—p. 327.
Local Anesthesia of Abdominal Sympathetic System. R. E. Farr, Minneapolis.—p. 336.
*Cure of Hemorrhoids by Clamp and Cautery Method; Sacral Anesthesia. P. Syms, New York.—p. 349.
Simple Excision in Duodenal Ulcer. L. Guerry, Columbia, S. C. —p. 353.
*Direct Leverage in Reduction of Fractures. J. E. M. Thomson, Lincoln, Neb.—p. 356.
Surgical Drainage of Peritoneum. R. L. Payne, Norfolk, Va.—p. 360.

Reconstructive Surgery of Hand.—The importance of an atraumatic technic in reconstruction surgery of the hand is again emphasized by Bunnell and many cases are reviewed to illustrate what can be done to restore a useless hand to good function.

Undescended Testicle.—The operative treatment of undescended testicle and the end-results in 107 cases are reviewed by Mixter. He says that operations for undescended testicle in childhood may be expected to yield from 75 to 80 per cent. of satisfactory results; that is to say, the testicle remains in the scrotum and subsequent atrophy does not ensue. Operation may be undertaken at any age with the expectation of a good result, if the accompanying hernia becomes troublesome or other indications arise. The preferable age for operation is between 5 and 12 years. At an earlier age the structures are so delicate that injury to the spermatic vessels is difficult to avoid. Orchidectomy should not be done in childhood. Replacement of the testes in the abdomen should also be avoided on account of the risk of a future malignancy. From this series no light has been thrown on the spermatogenic function of the undescended testis subsequent to an operation performed before puberty. In no instance has a recurrence of the hernia been observed.

Carcinoma of Stomach in Young.—Sullivan's patient was 22 years of age. The chief complaints were epigastric pain of four months' duration, and loss of strength and weight. The operative procedure consisted in a partial gastrectomy of a modified Billroth II type. The duodenal stump was inverted and held by three layers of purse-string sutures of chromic catgut. Anastomosis was made close to the cut end of the stomach with fixation of the transverse mesocolon well above the gastric suture line. The tumor proved to be a carcinoma simplex.

Gentian Violet in Phlebitis.—In five cases of phlebitis Shallenberger has obtained very good results from the intravenous injection of a 0.5 per cent. aqueous solution of gentian violet. The maximum dose is 5 mg. per kilogram of body weight. No bad symptoms or reactions have been noted. Some of the patients have manifested nervousness and have complained of weakness. Sweating was frequently observed. A bluish tinge to the skin simulating cyanosis usually appears, but passes off in a short time. The treatment can be repeated several times at two or three day intervals.

Abscess and Gangrene of Thyroid.—Behrend reports two cases of abscess and one case of gangrene of the thyroid, the latter being the only one on record.

Cholecystoduodenostomy and Cholecystogastrostomy.—Du Bose reports six cases of cholecystoduodenostomy and fifteen cases of cholecystogastrostomy done for various pathologic conditions of the gallbladder.

Sarcoma of Fallopian Tube.—To the twelve cases of primary sarcoma of the fallopian tube now on record, Dodd adds two. In both cases a vaginal discharge was the main symptom.

Telangiectasis of Sciatic Nerve Cause of Lameness.—Stewart and Bettin report a case of plexiform telangiectasis of the sciatic nerve and its branches, occurring in a boy, aged 10. His chief complaint was that he "walked lame." The child was normal at birth. At 10 months a lump was noted in the lower part of the right leg. Later three other lumps were observed. When he was about 4½ years old these masses were seen to be increasing in size and spontaneous pain appeared which was not relieved by position. This was followed by a flexion deformity of the knee which resulted in a definite limp. Over the head of the fibula were several small, bluish areas averaging less than 0.5 cm. in diameter. These become distinctly swollen when the limb is dependent. The lower portion of the belly of the gastrocnemius was enlarged and there was a distinct tumor about 4 cm. in diameter at the upper end of the tendo achillis. A diagnosis of multiple neuromas of the sciatic nerve and its branches was made and exploratory operation advised. The internal popliteal was divided at the highest possible level, the proximal end tied and injected with 95 per cent. alcohol. The ends of the incision were then carried as a racquet around the knee and the bone was divided above the epiphyseal cartilage and treated aperiosteally. On the external portion of the racquet a bluish, spongy mass was encountered which bled freely. The external popliteal could not be found at the level of the amputation and because of the child's condition a prolonged search for it was not instituted. The sciatic, internal and external popliteal, nervus suralis, nervus peroneus superficialis and profundus contained many angiomata in other sheaths. Sections of the nerve trunks showed large spaces lined by a single layer of endothelial cells resting on thin septa of fibrous and elastic tissue. Many of these channels were in the sheaths of the nerves, but the external popliteal nerve showed the sheath invaded and the nerve fibers pushed aside, the blood vessels occupying practicaly the entire sheath, and in some instances the smaller fasciculi contained a number of thin walled blood vessels; and in some instances a fasciculus was isolated by blood spaces. The whole picture was one of a new growth of thin walled blood vessels which had invaded the nerves and muscle in their paths, and in this sense it was malignant.

Lymphangioma of Fallopian Tube.—Strong reports two cases. In one a hysterectomy was done for uterine fibrosis and ovarian fibroma. About 1 cm. from the isthmic extremity of the tube and embedded in its wall was a firm, nodular tumor of about 5 mm. diameter. It consisted of a mass of lymph spaces lined by a regular endothelium which here and there was undergoing proliferation. The nodule was surrounded by normal musculature. A complete hysterectomy was done in the second case. The pathologic examination showed a large, boggy uterus with a stenosed internal os. The ovaries were somewhat enlarged and showed numerous cysts of the follicles. The tubes were of normal size, moderately convoluted, and a well defined, hard nodule was felt in the wall of one. Microscopic examination of this nodule showed a reticulum of connective tissue with large spaces of rather uniform size, lined by a simple flat endothelium showing no tendency to proliferate.

Retention of Urine After Prostatic Abscess.—The case presented by Cumming indicates that rare and grossly destructive prostatic infections may produce a complete and permanent retention of urine, directly resulting from a false cavity beyond control of the normal expulsory apparatus. Multiple operative proceedings resulted in a permanent, safe and workable relief of the retention.

Clamp and Cautery Hemorrhoidectomy.—In a series of 600 consecutive cases of hemorrhoids treated by the clamp and cautery method, Syms has had but one death, and that was due to pneumonia from ether. He feels that the clamp and cautery method of operating is the best and the safest. It is safer than the injection; it is safer than the ligature, in fact, it is safer than any other method of operating for hemorrhoids.

Direct Leverage in Reduction of Fractures.—Reduction of fractures by direct method has been done successfully by Thomson in fractures of the clavicle, humerus, radius and ulna (one or both bones), femur, in factures about the ankle and metatarsals. He says that this procedure should not be followed except after a reasonable effort at manual manipulation has failed. The procedure can be carried out more simply under the fluoroscope; however, it is just as applicable if an incision is used large enough to admit the forefinger into the wound, so that with the aid of the finger as a guide to the lever the apposition of the fragments can be assured.

When this work is done under the fluoroscope there is a minimum amount of trauma and also the least possibility of infection, but in fractures of the femur and leg bones, where fixed traction must be maintained on a fracture table the fluoroscope is not practical. The embedding of the lever in the plaster-of-Paris cast, after reduction has been accomplished, ensures adequate fixation of the fractured fragments.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

36: 335-406 (Aug.-Sept.) 1924

Cutaneous Xanthoma and Xanthomatosis of Other Parts of Body. F. P. Weber.—p. 335.
*Case of Multiple Sarcomatous Growth of Skin. F. H. Jacob and H. S. Wallace.—p. 370.
Case of Pityriasis Rubra Pilaris. G. Pernet.—p. 373.

Multiple Sarcomas of Skin.—About six weeks before Jacob and Wallace saw this man, crops of nodules, painless and nonirritable, appeared gradually over his trunk and limbs. A small crop of nodules had appeared previously in the skin about the ankles. The nodules varied in size from small nodules to plaques of 2 inches in diameter. They were dull red, and were firm, sharply defined, not tender, except to rough handling. The total number was somewhere around 150. The general condition and state of nutrition of the patient were fairly good. There were no enlarged glands, nor evidence of involvement of any internal organs. Treatment by roentgen rays caused a rapid diminution of the swellings. Five months later the patient was readmitted to the hospital. The lumps had reappeared, and he began to go down hill rapidly. He had some difficulty in breathing and swallowing. The liver and spleen were enlarged, and one or two nodules were palpable, though not visible, in the abdominal wall. The blood showed a lymphocythemia in the later stages.

British Journal of Medical Psychology, London

4: 85-178 (Aug. 23) 1924

Neuroses. J. C. McKerrow.—p. 85.
Primary Identification and Mysticism. A. Carver.—p. 102.
Significance of Idea of Death in Neurotic Mind. E. H. Connell.—p. 115.
Poetry and Unconscious. J. C. Hill.—p. 125.
Significance of Mouth in Psychanalysis. E. Glover.—p. 134.

British Journal of Ophthalmology, London

8: 353-400 (Aug.) 1924

Plane Glass Retinoscope. F. A. Williamson-Noble.—p. 353.
Dog's Tapetum in Early Life. C. H. Usher.—p. 357.
Progressive Atrophy of Iris with Formation of Holes and Glaucoma. G. F. Rochat and W. Mulder.—p. 362.
Case of Uniocular Paralysis of Accomodation. H. J. Flieringa.—p. 367.
Lens Changes Associated with Deposit of Pigment. J. Foster.—p. 370.
Prescribing Spectacles. A. S. Percival.—p. 371.

British Medical Journal, London

2: 393-450 (Sept. 6) 1924

EDUCATIONAL NUMBER

New Conceptions in Teaching of Public Health. A. Balfour.—p. 393.
Ophthalmic Practice. N. B. Harman.—p. 397.

2: 451-494 (Sept. 13) 1924

*Gallstones and Cancer of Gallbladder. A. Leitch.—p. 451.
*Treatment of Pernicious Vomiting in Pregnancy. S. E. Denyer.—p. 455.
*Pneumococcal Polyarthritis. A. S. Gubb.—p. 455.
Acute Poisoning by Fumes from Cellulose Acetate. G. Carter.—p. 456.
Cancerous and Precancerous Conditions of Skin. H. MacCormac.—p. 457.
Bakers' Dermatitis. A. C. Parsons.—p. 464.

Gallstones and Cancer.—His experimental results lead Leitch to conclude that, in the human subject, gallstones are capable of causing cancer of the gallbladder. Admitting that they do so in a comparatively small proportion of cases, he premises that in some individuals there is a natural resistance to carcinogenic agents, just as there is a natural resistance to pathogenic organisms, and learning from previous experiments that similar tumors may be produced by wholly dissimilar agents, he accounts for the carcinomas of the gallbladder which are found in the absence of gallstones as being due to some other causal agent or agents not yet identified.

Treatment of Pernicious Vomiting of Pregnancy.—The essentials of treatment in cases of pernicious vomiting in pregnancy Denyer says are: (1) rest in bed; (2) gastric lavage, with a solution of sodium bicarbonate, 1 dram to the pint, 1 or 2 pints being used; (3) epinephrin, 5 minims, hypodermically, every three hours for a few doses until the vomiting ceases, or by mouth in doses of from 10 to 20 minims in a little water; (4) omission of all feeding by rectal salines containing from one-half ounce upward of glucose to the pint, with a small quantity of sodium bicarbonate added if there is any diacetic acid in the urine; (5) addition to the evening salines of 30 grains of potassium bromid to help sleep and reduce irritability of the nervous system; (6) gradual increase in feeding by the mouth, beginning with small feeds of water.

Pneumococcus Polyarthritis.—The original diagnosis in Gubb's case was rheumatism of the knee. Extension applied to the limb by means of weights afforded the patient great relief. Treatment was limited to the subcutaneous injection of antipneumococcal serum. Improvement in general health was rapid. This, and the arrest of the tendency to suppuration of the joints is credited by Gubb to the curative effects of the serum. The immediate effect of the treatment was evidently to kill off the colonies of pneumococci originally present in the synovial effusion so that on a second examination of the fluid no pneumococci were present.

Edinburgh Medical Journal

31: 413-460 (Aug.) 1924

*Reactions of Ulnar Nerve in Disease. I. Mackenzie.—p. 413.
*Anatomic Peculiarity of Transverse Process of Atlas. D. M. Greig.—p. 432.

Reactions of Ulnar Nerve in Disease.—Mackenzie has devoted himself to the study of some peculiar reactions of the nervous system, especially referred pains and effects. He points out that the emotional expressions of organic activity are most pronounced, in mammalian life at least, at the fore and hind ends of the body. The selection of the fore and hind ends of the organism for the display of emotions is to be correlated with the presence of the medulla oblongata at one end and of the lumbosacral enlargement at the other. The tendency is for disease to find expression in the structures to which they are related. In view of its structure and function, the upper limb is frequently the site of selection for the expression of cardiac disease, pleurisy, gallstones, chronic gastric disorder, organic disease of the brain and those states of nervous instability which come under the designation of neurasthenia. In chronic heart disease, in chronic pulmonary disease, in chronic alimentary disease, more especially when these processes are accompanied by nervous excitability, it is common to find a vasodilatation in the skin of the ulnar aspect of the hand. During the war it was the common experience to find that the prognosis in injuries of the upper limb depended not so much on the extent or character of the lesion as on the segment of the limb in which the injury occurred. Prognosis in lesions in the musculospiral segment was good, in the median doubtful, in the ulnar segment usually bad. Trophic disturbances were far more common in the ulnar segment than in any other part of the hand. In conformity with the tendency of these paradoxical phenomena to gravitate toward the ulnar segment were the unfavorable results obtained by suture after transection of the ulnar. So general was the proclivity of lesions in the ulnar segment to terminate in peculiar sequelae that it was obvious that the complications were determined by structural and functional conditions which underlie the behavior of the limb as a whole. The seat of the injury is an important factor, for injuries on the ulnar or inner aspect of the limb have consequences far different from those on the musculospiral or outer aspect. Mackenzie reviews the evolution of the hand and the anatomy of the sympathetic system and the cervical enlargement, "referred pain" in angina pectoris, irradiation of pain in toothache, angina pectoris and the cervical enlargement and the anginal complex and the upper limb.

Anomaly of Transverse Process of Atlas.—The bone described by Greig was removed from the body of a woman, aged 72. The left transverse process was normal except that its posterior root was pierced toward its posterior border by a small pyriform foramen. Each root of the right transverse process was represented by a nipple-shaped process of bone projecting from the lateral mass, and the posterior of these, which was the longer, measured 8 mm. in length and terminated in a convex cartilage encrusted articular surface. To this was articulated by a corresponding concavity a little mass of bone very suggestive in size and shape of a large pisiform from the adult wrist. Anteriorly this epiphysis presented a minute papilla which almost joined the anterior root of the transverse process; an extremely short ligamentous connection between the two doubtless completed the foramen transversarium.

Japan Medical World, Tokyo

4: 193-218 (Aug. 15) 1924

Prophylaxis of Weil's Disease Agriculturally Viewed. Y. Tohyama.—p. 193.
Investigation of Nation's Health. K. Miyairi.—p. 198.

Journal of State Medicine, London

32: 351-400 (Aug.) 1924

Improved Neutral Red Light Green Double Stain, for Staining Animal Parasites, Micro-organisms and Tissues. F. W. Twort.—p. 351.
*Pathology and Treatment of Chronic Bacillary Dysentery. P. Manson-Bahr and A. L. Gregg.—p. 356.
Prophylactic Treatment of Bilharzia Disease (Schistosomiasis). J. B. Christopherson.—p. 367.
*Absorption of Copper During Digestion of Vegetables Artificially Colored with Copper Sulphate. J. C. Drummond.—p. 382.
Intestinal Spirochetosis. W. Broughton-Alcock.—p. 387.

Chronic Bacillary Dysentery.—Manson-Bahr and Gregg are of the opinion that operative measures are strongly indicated as being the only rational method of treatment of chronic bacillary dysentery. The indications for operation should be based upon the following: signs of toxic absorption, marked intestinal hemorrhage, sigmoidoscopic appearances indicating grave destruction of the mucosa, the formation of bleeding polypi, and the failure of properly conducted intestinal lavage. It is not justifiable to wait till the patient is in extremis before instituting operative measures. Should the patient not respond to lavage within a reasonable time, should he continue to lose weight, the indications are that persistence in these measures will not meet with any greater degree of success, so that operation must be resorted to. Manson-Bahr favors cecostomy, performed under local, spinal or general anesthesia. The after-care of these cecostomy cases is important. It is necessary to leave the cecostomy open for three or four months in order that the patient may regain his condition, and in order to give the bowel time to heal completely. Closure of the wound should be considered in the absence of any sign of toxic absorption; in the absence of any discharge from the large bowel; with progressive gain in weight and improvement in general physical appearance of the patient; with a satisfactory appearance of the mucous membrane of the large bowel. The lower portion may be examined per rectum by the sigmoidoscope, the upper, the cecum and ascending colon, by means of a cystoscope passed through the cecostomy wound while irrigation is in progress.

Absorption of Copper from Artificially Colored Vegetables.—It would seem that in the digestion of vegetables which have been subjected to "reverdissage" with copper sulphate a certain amount of the copper is liberated in a form capable of passing a dialyzing membrane, and therefore likely to be absorbed in the animal body. There is also definite evidence that animals can absorb traces of copper, and that part of this absorbed metal is held for a time by the liver until it is excreted either by way of the urine or the feces. The experiments on rats recorded by Drummond make it questionable whether it has yet been proved that the absorption of small traces of copper over long periods of time is likely to lead to harmful consequences.

Journal of Tropical Medicine and Hygiene, London

27: 223-234 (Aug. 15) 1924

Eimeria N. Sp. Found in Feces of Eland. M. J. Triffitt.—p. 223.

Medical Journal of Australia, Sydney

2: 133-158 (Aug. 9) 1924

*Treatment in Fracture of Long Bones. N. D. Royle.—p. 133.
Specialists and General Practitioners: Their Education and Relation to Each Other. R. S. Skirving.—p. 137.
*Two Cases of Acute Pulmonary Edema. R. T. Binns.—p. 141.

Treatment of Fractures.—The method devised by Royle involves a knowledge of plaster-of-Paris technic and aims at taking away the necessity for muscular action by fixing the joints in their normal position and by providing an exoskeleton to support the soft tissues. To prevent redisplacements the joints above and below the seat of fracture are first encased and the plaster is allowed to set. When the end-casings are sufficiently hard, reduction of the fracture is effected by manipulation or by traction. The traction is made on the plaster end-casings which are thus made to fit against some fixed point. The middle section is then plastered to retain the ends in position and support the weight of the soft tissues. The technic in various fractures is outlined.

Acute Pulmonary Edema.—In both of the cases recorded by Binns an attack of acute pulmonary edema occurred in patients suffering from acute nephritis. In the first patient there was no apparent cause for, or warning of the attack; in the second the symptoms followed aspiration of the pleural cavity and the occurrence of the condition was anticipated.

Tubercle, London

5: 569-616 (Sept.) 1924

*Atypical Tubercle Bacilli in Human and Animal Tuberculosis with Special Reference to Those Occurring in Lupus. A. S. Griffith.—p. 569.
*Comparison of Chest Roentgenograms and Physical Findings in Twelve Hundred Cases of Tuberculosis. A. F. Miller and H. T. Hamon.—p. 586.
*Clinical Value of Examination of Feces for Tubercle Bacilli. F. G. Chandler and A. J. H. Stobo.—p. 592.
*Staining of Tubercle Bacilli in Sputum. E. C. Thistlethwaite.—p. 596.

Atypical Tubercle Bacilli.—Griffith details the results obtained in the bacteriologic investigation of material obtained postmortem and from the different clinical varieties of tuberculosis, stating for each group of cases the proportion of human to bovine infections and also that of atypical to standard strains. Of 114 cases of cervical gland tuberculosis, human tubercle bacilli were found in 65 and bovine bacilli in 59 cases. Of 514 cases of bone and joint tuberculosis, the bacilli were of the human strain in 415 cases and of the bovine strain in 99 cases. Human bacilli were found in 10 of 12 cases of tuberculous meningitis; in 17 of 21 cases of genito-urinary tuberculosis, and in 267 of 275 cases of pulmonary tuberculosis. Only seven strains from more than 1,100 cases of internal tuberculosis showed evidence of modification of pathogenic properties. Of 140 cases of lupus, 71 yielded strains culturally of bovine type and 66 strains culturally of human type, while three were atypical in cultural characters. Of the 71 culturally bovine strains, 22 were fully virulent for all the species of animals tested, and 49 showed varying degrees of lower virulence. Of the 66 human strains, 19 were of standard virulence, and 47 were less virulent in varying degree than standard human strains.

Roentgenography of Lung.—In common with other clinicians, Miller and Hamon have found that, while roentgenology is of considerable assistance in differentiating respiratory conditions simulating tuberculosis, it is also most helpful in demonstrating the extent and location of tuberculous disease in the lungs.

Examination of Feces for Tubercle Bacilli.—Chandler and Stobo are of the opinion that an examination of the feces in cases in which bacilli cannot be found in the sputum is of practical clinical value.

Staining Tubercle Bacilli.—Thistlethwaite has devised a method of staining tubercle bacilli quickly: Two layers of ordinary sputum, or three of liquid are spread. Then the films are dried and fixed by heat. Ten per cent. sulphuric acid is used as a decolorizer. As a counterstain either saturated picric acid or methyl green is used. The Ziehl-Neelsen technic used is: carbolfuchsin, heat, six and one-half minutes; 10 per cent. sulphuric acid, decolorizer, five minutes; methylene blue, stain, one-half minute. Total time consumed for staining is twelve minutes.

Archives Franco-Belges de Chirurgie, Brussels

27: 369-464 (May) 1924

*The Transolecranon Route. P. Guillot.—p. 369.
*Wolffian Cysts. Silhol and Bourde.—p. 377.
Osteomalacia in Boy Aged 10. Vedel and Puech.—p. 398.
The Ideas of Dr. Crile on Operative Shock and Their Clinical Application. J. de Necker.—p. 411.

The Transolecranal Route.—Guillot recalls that ankylosis, compression of nerves, paralysis, deviations and ischemic contracture are some of the frequent sequels of nonoperative treatment of fractures and luxations of the elbow. Guillot recommends to the surgeon the transolecranal route of approach as used by Lambotte, and describes three cases in which this technic was successfully employed. Access is by a Y-shaped incision, with the distal branch over the ulna, and the two proximal branches on either side of the triceps. The olecranon is removed but is put back in place and held by a screw. With the exception of the ulnar nerve, no important organ is encountered. Active and passive movements are begun very gently a few days after the operation.

Wolffian Cysts.—Silhol and Bourde point out that, while the wolffian cysts of the broad ligament, and certain cysts of the external genitalia, have been known and studied for many years, the wolffian cysts that develop at the level of the lumbar region and the walls of the abdomen are not so well known, and it is these that they discuss, in the main. Wolffian cysts are much more frequent in women than in men, though cysts of the external genitalia are frequent also in men. In the male, the chief portion of the wolffian body becomes the excretory ducts for the sperm, but in the female, the different portions of the wolffian body lose all function in the adult organism, atrophy and persist in the form of vestigial remains. The descent of the genitalia becomes the cause of dissemination of the remnants, and explains the various sites of the cysts. Only one instance of a cyst of the abdominal wall has been observed by the authors. There is no tendency to become malignant. When removed, the cyst does not recur. However, in spite of their benign character, all cysts of considerable size should be removed.

Archives des Maladies du Cœur, Paris

17: 545-608 (Sept.) 1924

History of Digitalis. H. Vaquez.—p. 545.
*Cardiovascular Changes in Acute Nephritis. C. Lian and J. Haguenau.—p. 558.
*Pulsus Alternans and Its Prognosis. Regnier.—p. 569.
*Cardiovascular Status in Nitroglycerin Workers. J. Heitz.—p. 578.

Cardiovascular Changes in Acute Nephritis.—Lian and Haguenau describe instances of overexertion of the heart in acute nephritis, the so-called forced heart, *cœur surmené* and *cœur forcé*. In the former there is acute insufficiency of the left ventricle; dyspnea is rather frequent, gallop rhythm rare (if not confounded with a mesosystolic murmur), and cardiac asthma is exceptional. An asystolic syndrome with sudden onset is manifest with the forced heart of acute nephritis, and is accompanied by an enlarged and tender liver. They emphasize also the frequency of bradycardia, which may be caused by defective elimination through the kidneys. There is usually arterial hypertension which also contributes to the heart disturbances.

Pulsus Alternans and Its Prognosis.—Regnier specifies two types of alternating pulse. In the incomplete, juxtamaximal type, in which the phenomenon is recorded near the maximal arterial tension, the prognosis is favorable, compatible with relatively prolonged life. One patient survived even for eleven years. The other, the complete type, juxtaminimal, may be registered on the whole sphygmomanometric scale, to the limit of the minimal tension. Patients with a pulse of this type usually died in a few months to one year. Only one survived for three years.

Cardiovascular Status in Nitroglycerin Workers.—Heitz' examination of twenty-six workers showed that the employees in the first day, also visitors, several hours after a sojourn in the factory, suffer with headache, followed by nausea, vomiting, and sometimes diarrhea. A noticeable loss in weight occurs in the beginning. The disturbances may persist in some instances for two or three days. The workers soon become accustomed to it, but if they interrupt the work for several weeks, the same disturbances appear on starting to work again. No changes in heart function, in the rhythm of the pulse, or in the oculocardiac reflex have been noted. The blood pressure decreased slightly during the work, to become normal in the first hour of rest. He relates that only one instance of similar research has been published. This was Ebright's study of twenty men working in a dynamite factory in California. The findings were identical.

Revue Franç. de Gynécologie et d'Obstét., Paris

19: 369-400 (June) 1924

Pyometra in Elderly Women. J. Mouchotte.—p. 369.

Lyon Chirurgical

21: 397-524 (Aug.) 1924

*Blood Vessels and Radium. Dobrovolskaia-Zavadskaia.—p. 397.
Urachus Cysts Communicating with Bladder. Thévenot and Creyssel.—p. 428.
*Abortive Treatment of Gonorrhea. Carle.—p. 437.
*Periarterial Sympathectomy. G. Petrescu.—p. 449.
Deforming Osteochondritis of Hip Joint. R. Tillier.—p. 464.
Rami Communicantes from Surgical Standpoint. Leriche and Wertheimer.—p. 485.

Action of Radium Rays on Blood Vessels.—This illustrated report of experimental research at the Radium Institute at Paris has apparently established that the soft beta and gamma rays cause the disappearance of the capillaries, and a fibrinoid necrosis of the larger vessels, with thrombosis in the vicinity of the radio-active focus. The vessels which have thus lost their functional capacity become replaced by connective tissue. Those with only partial loss recuperate to some extent, but the walls still retain grave histologic changes with only slight tendency to restitution. The hard gamma rays induce dilatation of the capillaries and small veins with tendency to hemorrhage, loss of the endothelium and other changes which may entail obliteration of smaller vessels. The radium capsules or needles were placed close to the vessel in the dogs and rabbits, and it was demonstrated that with the doses and filters used in clinical radium therapy, the changes induced by the hard gamma rays were minimal. This justifies their application in deep regions exposed by an operation. Infection, with its inflammatory infiltration, induces rapid softening of the parts altered by the irradiation, with danger of secondary hemorrhage and thrombosis. Although vascular congestion is the first symptom from the irradiation, the pathologic modifications spread in concentric zones, not following the course of the vessels.

Abortive Treatment of Gonorrhea.—Carle remarks that the present tendency is to use larger numbers of the microorganisms in the vaccines, and to prefer the polymicrobian. In abortive treatment there is no time to wait for an autogenous vaccine, as the main factor in success is the promptness of the treatment, never delaying an hour. He knows of only a dozen cases in which a cure seemed to be realized by vaccine therapy alone, and insists on the importance of training the patient to apply the local treatment to the urethra three times a day and on retiring, returning to the physician for supervision every day. The syringe should have a capacity of 10 c.c. at least. Large lavages once or twice a day may aid in the prompt cure, but these are not indispensable. Attention to minor details and daily surveillance are absolute requisites.

Periarterial Sympathectomy.—Petrescu's experience with Leriche's operation in fifteen cases included one in which extensive periarterial sympathectomy and resection of the saphenous vein was followed by the cure in three days of an old extensive leg ulcer. In a case of trophic ulcers on both feet, the sympathectomy on one side was followed by the cure of the ulcers on both sides. Recovery was complete in from one to three weeks in all the cases of trophic ulcer, mal perforant, etc. With gangrene, the pain was relieved at once and amputation could be done under better conditions.

Paris Médical

205-216 (Sept. 13) 1924

*Mitral Stenosis and Dystrophia. P. Merklen.—p. 205.
Acute Poisoning with Mercuric Chlorid. C. D. Constantinescu and D. Ilie.—p. 209.
Technic for Nephrectomy. Uteau.—p. 212.

Mitral Stenosis and Dystrophia.—Merklen accepts that mitral stenosis is of infectious origin, and it seems to be often due to rheumatism. The coincidence of the stenosis with malformations and constitutional anomalies, as infantilism, nanism, are explained by the common cause. The infection, occurring in childhood, affects the heart as well as the endocrine glands, and, consecutively, the growth and development of the subject.

Presse Médicale, Paris

32: 737-744 (Sept. 10) 1924

Growing Pains Simulating Pott's Disease. Sorrel and Delahaye.—p. 737.
*Recurring Manifestations in Syphilis. Hudelo and Rabut.—p. 740.
Acidity in Biologic Fluids. R. Goiffon.—p. 743.

Recurring Manifestations of Secondary Syphilis.—Hudelo and Rabut point out that a recurrence of secondary syphilitic manifestations may appear not only after an intensive and prolonged treatment, but even during the course of the treatment. The recurrence many take the form of mucous patches in mouth, anus or genital region, or of a chancriform syphilid. The Wassermann test may be negative. The conclusion is that a permanent surveillance of syphilitic patients is necessary.

32: 745-752 (Sept. 13) 1924

*Pseudo-Malarial Paroxysms in Typhoid. Caussade and Le Rasle.—p. 745.
*Hiccup and Heredity in Epidemic Encephalitis. E. Joltrain and J. Hutinel.—p. 748.
Exanthema Subitum in Childhood. J. Mouzon.—p. 751.

Pseudomalarial Paroxysms in Typhoid Fever.—Caussade and Le Rasle describe six cases of typhoid with paroxysms of fever, of the malarial type, occurring in the course of the disease. The paroxysms appeared mostly at the time of defervescence, recurred daily, and were accompanied by all the characteristic symptoms of malarial fever. Only blood examination can dissipate all doubt in differential diagnosis.

Hiccup in Epidemic Encephalitis.—Joltrain and Hutinel report a case of severe hiccup for a week in epidemic encephalitis. The hiccup seemed to depend on respiratory disturbances such as occur in a hemoclastic shock, following intravenous injections of some substance. In their case the hiccup appeared after an injection of a preparation of mercury.

Schweizerische medizinische Wochenschrift, Basel

54: 833-856 (Sept. 11) 1924

*Meningeal Permeability. S. Katzenelbogen.—p. 833.
Treatment of Epidemic Encephalitis. Roch and Katzenelbogen.—p. 834.
Lethal Case of Hereditary Hemolytic Jaundice. H. Ryser.—p. 838.
Treatment of Tuberculosis. W. Lanz.—p. 838.
*Prostatectomy. E. Borchers.—p. 841.
Epilepsy and Thyroid. V. Demole.—p. 842.
Testing a Therapeutic Apparatus. F. Kübler.—p. 843.
Liver Function Test. O. Schirmer.—p. 843.

Meningeal Permeability. — Katzenelbogen produced an aseptic meningitis by intraspinal injections of a casein solution. He found that this increased the concentration of nitrates in the cerebrospinal fluid in the permeability test. The figures were, however, never as high in his patients (encephalitis and multiple sclerosis) as those obtained in tuberculous meningitis.

Prostatectomy.—Borchers describes an apparatus for permanent aspiration of the urine after prostatectomy.

Archivio Italiano di Chirurgia, Bologna

9: 577-700 (Aug.) 1924

Abscess in Thigh Traced to Iliac Fossa. G. Razzaboni.—p. 577.
*Volvulus of Sigmoid Flexure. U. Stoppato.—p. 585.
*Repair of Peripheral Nerves. V. Jura.—p. 629.
Jackson's Membrane. G. Brendolan.—p. 664.

Volvulus of Sigmoid Flexure.—Stoppato remarks that ileus traceable to the sigmoid flexure runs a much less acute course than when the obstruction is elsewhere in the bowel. In the case described, in a man aged 65, the pulse was good and regular even two and a half days after the sudden onset of symptoms. The pain was localized in the left iliac fossa, but the meteorism was diffuse and resembled that observed with occlusion of the small intestine, the abdomen protruding in the median region and depressed in the lateral regions, over the ascending and descending colon. The difficulty of reducing the enormously dilated loop justifies resection from the start, and he reports a case in which this way done. The Murphy button used was found in the rectum the eighth day. Roentgenoscopy the sixth week showed the colon apparently normal in size, shape and motor function. The sigmoid was apparently congenitally overlong, and infectious processes had entailed hypertrophy and secondary dilatation with retractile mesosigmoiditis.

Recuperation of Peripheral Nerves in Suppurative Processes.—Jura gives the details of research on forty-one dogs which confirmed the extraordinary resistance to suppurative processes displayed by severed peripheral nerves. The resistance was absolute in the proximal stump, but in the distal stump the superficial layers of the nerve became involved in the inflammatory process. The sutured nerves recuperated well, although rather slowly, in suppuration due to ordinary aerobic micro-organisms. He says that the best means to protect the nerve during the healing process is by wrapping it in an artery prepared by Foramitti's method.

Chirurgia degli Organi di Movimento, Bologna

8: 529-650 (Aug.) 1924

*Angiomas. G. Vernoni.—p. 529.
Caudal Appendix. G. Adami.—p. 590.
*Postoperative Tetanus. F. Satta.—p. 605.
Occipitalization of the Atlas. M. Lupo.—p. 611.
*Hyperneurotization of Paralyzed Muscle. G. Serra.—p. 617.
Formation of Bone in Gluteal Region. A. Avoni.—p. 633.
Robert Williamson Lovett. Obituary. V. Putti.—p. 639.

Angioplastic Angiectasia of the Leg.—Vernoni's patient was a young man with total, diffuse transformation of the muscles of the right leg, a congenital tendency to cavernous angioma, with thickening of the walls of the vessels involved. Nothing to confirm the assumption of osteomyelitis was found in the amputated limb, which showed merely angioplastic angiectasia. The young man soon regained robust health. The most characteristic features of the condition were the intense pains in standing and the sudden relief when the limb was horizontal. The literature on angiectasia is reviewed.

Postoperative Tetanus.—Satta protests against Wohlgemuth's statement that tetanus has never developed after operations on the limbs or head. Satta describes three cases in which postoperative tetanus followed an aseptic operation on the foot. The infection must have been endogenous from latent contamination as no other cases of tetanus developed, and the routine asepsis at the Rizzoli Institute is very strict. Two of the three patients died, and he intends to give a preventive injection of tetanus antiserum in future before operating on a deformed foot that shows any signs of ulceration, even long healed.

Hyperneurotization of Muscles.—Serra concludes from his experimental research on seven rabbits that a nerve implanted in a healthy muscle, in addition to its natural intact nerve supply, does not enter into functional union with the muscle as shown by electric tests.

Anales de la Facultad de Medicina, Montevideo

9: 479-574, 1924

*Treatment of Uterine Cancer. O. L. Bottaro.—p. 479.
*Postoperative Peptic Ulcer. A. Navarro.—p. 511.
*Own Blood in Treatment of Serum Sickness. F. Abente Haedo.—p. 516.
Arsenic Poisoning of Family. D. Giribaldo.—p. 533.
Extrapulmonary Cancer in Boy's Chest. V. Escardó y Anaya.—p. 546.
Congenital Site of Left Kidney in Pelvis. E. J. Tarigo.—p. 556.

Treatment of Uterine Cancer.—When the extensive Wertheim operation is not feasible, Bottaro still extirpates the cancer when possible without injury to ureter, bladder or rectum. He treats with radium alone only in the absolutely inoperable cases, but advocates postoperative radium treatment as a routine procedure. He reports some striking cases in which vaginal hysterectomy followed by radium seems to have cured the malignant disease although sometimes at the expense of a rectovaginal fistula. In one case after the epithelioma had partially subsided under radium exposures alone, the malignant disease flared up anew with active cancer proliferation at the points of major irradiation only two months before.

Treatment of Peptic Ulcer After Gastro-Enterostomy.—Navarro thinks the treatment he applied ten months ago in a case described has a future. He says its advantages are obvious from the illustrations. The stomach is resected along a transverse line well above the gastro-enterostomy opening and the stump is sutured. The loop of jejunum utilized in the previous gastro-enterostomy is drawn up to form a new one, the new opening a few centimeters below the kink at the end of the loop. The limbs of the loop are sutured together (gun-barrel), and fastened to the stomach. The new opening is made to bring the acid opening as close as possible to the bile-pancreatic juice opening. The only drawback to the method is that the peptic ulcer is left unmolested, but his experience has been that it soon heals when relieved from irritation. The whole procedure is extra-abdominal.

Treatment of Serum Sickness.—Abente Haedo states that injection of 20 c.c. of own blood has had a remarkably prompt and effectual action in his experience with symptoms of intolerance for antiserums of any kind or for arsphenamin. Persons known to react with urticaria to certain foods, the asthmatic and the tuberculous are predisposed to serum sickness, and this autohemotherapy may tide them past critical periods.

Brazil-Medico, Rio de Janeiro

2: 107-120 (Aug. 16) 1924

*Urinary Neurasthenia. Americo Valerio.—p. 107.
The Tobacco Question. G. Pereira da Silva.—p. 110.
The Clinic Versus the Laboratory. G. Lima.—p. 112.

2: 121-132 (Aug. 23) 1924

Extensive Chronic Scrofuloderm in Adult Man. F. Silva.—p. 121.
Systolic Murmur at Base in Aortic Insufficiency. J. L. de Mesquita.—p. 124.
Recent French Medical Literature. Desaux and Trolard.—p. 126.

Urinary Neurasthenia.—Valerio remarks that sexual pathology is constantly becoming more complex and encroaching on internal medicine, surgery, legal medicine and psychiatry. He describes five cases of impotency or sexual neurasthenia in which a cure seemed to be realized by local treatment of the inflamed or otherwise abnormal verumontanum.

Gaceta Médica de Caracas

31: 177-192, 1924

Trypanosomiasis in Horses in Venezuela. E. Tejera.—p. 177.
Idem. Iturbe.—p. 180.
Respiratory Insufficiency from Obstruction of Nose in Children. F. de P. Rivas Maza.—p. 181.

Revista Médica de Bogota

42: 65-134, 1924

Pathologic Anatomy of Rhinoscleroma. J. Fajardo Escobar and A. Peña Chavarría.—p. 66.
*The Acute Phases in Chronic Leprosy. F. de P. Barrera and A. Peña Chavarría.—p. 69.
Experimental Research on Origin of Tumors. R. Restrepo.—p. 99.
Intravenous Injections of Sugar. J. Mendoza C.—p. 115.

The Acute Phases in Chronic Leprosy.—Barrera and Peña Chavarría have had extensive experience in work among lepers, and they here expatiate on the importance of the acute phases which frequently interrupt the chronic course of the disease. They emphasize the difference between the chronic tubercle and the acute inflammatory nodule, and the importance of the enhanced elimination of the bacilli by all the emunctories during these acute flare-ups. They seem to be a defensive reaction against the bacillus and its toxins, and treatment during this acute phase is most likely to prove effectual. They compare the metabolic findings during the chronic and the acute phases and the differential blood counts in four or five cases to illustrate the differences.

Revista de Medicina y Cirugía, Caracas

7: 177-196 (July 31) 1924

*Feeding in Dysentery. J. M. Salmerón Olivares.—p. 177.
Pharmacology and Toxicity of Chenopodium Oil. E. Noguera Gómez.—p. 185.

The Diet in Dysentery.—Salmerón Olivares refers only to cases more or less refractory to emetin, his long experience having shown that the patient should be fed when he has an appetite notwithstanding the persisting dysenteric stools. He can take two or three times a day a little chicken or beef broth and bread, and after two or three days lean roast fowl, etc., with little salt. To avoid the peristaltic wave almost certain to follow ingestion of food, he gives a little opium with each meal. This allows digestion to proceed for two or three hours, and the stools afterward are voided with less pain and tenesmus. He is convinced that a death from dysentery is due to the disease plus inanition, and since he has been allowing animal food he has not had a death from either amebic or bacillary dysentery. He describes a few extremely severe cases to show the prompt recovery when the recuperating forces are aided in this way. Milk and coffee seem to exaggerate peristalsis.

Semana Médica, Buenos Aires

2: 401-468 (Aug. 21) 1924

Phenol by the Vein in Tuberculosis. B. González Troncoso.—p. 401.
*Asthma from Congenital Syphilis. S. E. Parodi and D. J. Rojo.—p. 403.
*Artificial Pneumothorax. R. A. Izzo and O. P. Aguilar.—p. 407.
*Lipoidal Nephrosis. J. R. Goyena.—p. 411.
*Alimentary Anemia in Infant. Schweizer and Pacheco.—p. 417.
Hygiene in the Medical Curriculum. M. V. Carbonell.—p. 421.
Gynecology in Idem. O. L. Bottaro.—p. 423.
*Measles Phlebitis. J. Roberto Paso.—p. 427.
Two Cases of Cephaloplegic Form of Infantile Paralysis. Efraín Martínez Zuviría.—p. 432.
*Malaria Treatment of General Paralysis. L. Merzbacher.—p. 433.
Examination of the Insane. J. M. Cabrera.—p. 441.
Diabetes Recurring in Pregnancies. M. Luis Pérez.—p. 444.
Constipation. V. Pauchet.—p. 452.

Asthma as Tardy Manifestation of Congenital Syphilis.—Parodi and Rojo were inclined to suspect inherited syphilis as the cause of the asthma which developed at the age of 25, but were misled at first by the eosinophilia of 60 per cent. Owing to inadequate treatment, there was neurorecurrence in the cochlear nerve which stamped the affection as syphilitic; this was confirmed by the improvement under specific treatment, not only the hearing but the blood picture returning to approximately normal.

The Other Lung with Artificial Pneumothorax.—Izzo and Aguilar say that the better ventilation of the other lung from the compensating hypertrophy after artificial pneumothorax explains the benefit in this other lung and also in extrapulmonary foci. With bilateral lesions, before applying artificial pneumothorax, the reacting forces should be tested, and the procedure applied while the defensive forces are still vigorous.

Nephrosis.—Goyena attributes the improvement in the case described to the treatment for syphilis, the dieting and diuretics, but also in large part to an adjuvant course of thyroid treatment. The benefit from the latter confirms the close connection between the nephrosis and the phenomena of endocrine insufficiency.

Alimentary Anemia in Infant.—The child had been fed with milk almost exclusively and at the age of 28 months presented intense anemia with great enlargement of the spleen. The prompt cure of the anemia on change of the food corroborates Schweizer's assumption that the anemia was of alimentary origin. The child was weakly from birth but has developed normally during the four years since the recovery from the anemia. The spleen subsided to normal size at the same time.

Measles Phlebitis.—Paso's patient was a young soldier with stigmata of inherited syphilis who developed phlebitis of the left femoral vein during convalescence from measles. It was of the phlegmasia alba dolens type, with the neuralgic pains very severe, but it subsided without complications in three weeks. Paso has found on record only six cases of phlebitis during measles.

Malaria Treatment of General Paralysis.—Merzbacher's experience with fifteen cases has impressed him with the profound influence which the intercurrent malaria exerts on the course of general paralysis. Also with the absolute harmlessness of the method when properly applied. In the four cases in which it was followed by the most pronounced benefit, the usual measures had long been applied previously without appreciable effect. Even allowing for possible natural remissions, no one could count on 50 per cent. in such a brief time, as was realized under the malaria treatment.

Archiv für Verdauungskrankheiten, Berlin

33: 227-348 (Aug.) 1924

*Paradoxic Proctostatis. H. Strauss.—p. 227.
Pancreatic Cysts. M. Einhorn.—p. 231.
*Results of Operations on Stomach. F. Oestreicher.—p. 240.
Hydrogen Metabolism. F. Schilling.—p. 261.
*Treatment of Ulcer with Niche. E. A. H. Friedheim.—p. 270.
Action of Matte. R. Tscherning.—p. 332.
*Action of Atropin on Esophagus. T. Bársony and F. Polgár.—p. 339.
Gastric Neurosis and Blood Vessels. J. Jünger.—p. 343.

Paradoxic Proctostatis.—Strauss uses this term for cases of retention of a large scybalum in the rectum which causes diarrhea stools, sometimes mixed with mucus. Digital examination of the rectum reveals the condition, and manual removal of the irritating obstacle brings rapid relief. Aged women form the bulk of these patients. It may, however, be found sometimes in children with an anal fissure.

Results of Operations on Stomach.—Oestreicher found in some patients fermentation dyspepsia after an operation for gastric ulcer. In others the fats and proteins were less well digested. Singer's advice to have the patient lie on his right side to fill the duodenum and provoke the normal reflexes, is good. He observed four instances of peptic ulcer of the jejunum in patients who had been treated with partial resection of the stomach.

Treatment of Ulcer with Filling Defect.—Friedheim reports extensively on five cases of gastric ulcer with an unquestionable niche, with complete recovery after internal treatment. The average time of treatment was six weeks and the patients were observed for three to seven years. The danger is only in obtaining a mere latent stage which may end by a perforation. The patient has to be prepared for immediate surgical intervention at the first signs.

Action of Atropin on Esophagus.—Bársony and Polgár found after intravenous injection of 1 mg. atropin a prolonged time of passage through the esophagus.

Deutsches Archiv für klinische Medizin, Leipzig

145: 1-128 (Sept.) 1924

Excretion of Acetone and Oxybutyric Acid. A. Lublin.—p. 15.
*Edema of the Blood. K. Beckmann.—p. 22.
*Heart and Vessels in Early Syphilis. Amelung and Sternberg.—p. 34.
*Rhythmic Changes of Arteries. E. Schott.—p. 49.
Respiration in Emphysema and Kyphosis. A. Engelhard.—p. 59.
Myeloblastic Leukemia. Kwasniewski.—p. 83.
Aspiration of Stomach Contents. H. Dennig and K. Goette.—p. 97.
Function of Gastric Cells. T. W. Pschenitschnow.—p. 103.
Research on Squill. K. Fahrenkamp.—p. 109.

Edema of the Blood.—Beckman measured the amount of the water expressed from the serum through an ultrafilter in a given unit of time. He found with serums from edematous patients sometimes higher, sometimes lower amounts than in the controls. He believes in changes of hydration of the colloids and in a real edema of the blood. Refractometric results differed from those obtained by determinations of protein nitrogen.

Heart and Vessels in Early Syphilis.—Amelung and Sternberg examined during the last two years the circulation apparatus in patients treated for syphilis. An affection of the heart due to syphilis in the secondary stages was quite probable in 21 per cent. of their 275 cases. Subjective disturbances were frequent. Antisyphilitic treatment had a favorable influence.

Rhythmic Changes of Arteries.—Schott found in volumebolograms taken on the thighs rhythmic changes at about one minute intervals. They were especially pronounced in athletes; he never saw them in patients with arteriosclerosis or contracted kidneys.

Deutsche medizinische Wochenschrift, Berlin

50: 1235-1266 (Sept. 12) 1924

*Cure of Rabbit's Syphilis. W. Kolle.—p. 1235.
Preparations of Iron and Arsenic. Morawitz.—p. 1238.
*Physical Diagnosis with Tuning Fork. E. Eisner.—p. 1247.
*Specificity of Wound Hormones. K. Nasvytis.—p. 1248.
Blood Transfusion in Children. H. Opitz.—p. 1248.
Paralysis of Eye Muscles in Exophthalmic Goiter. Jaensch.—p. 1249.
Dosage in Hydrotherapy. Buttersack.—p. 1250.
German Birth Statistics. E. Roesle.—p. 1250.
Bathing Resorts in Russia. N. Semaschko.—p. 1251.
Pneumothorax and Social Insurance. Wolff-Eisner.—p. 1253.
Meinicke's Turbidity Reaction. G. Elkeles.—p. 1256.
Pneumogastric Reflexes. H. Kähler.—p. 1256.

Cure of Rabbit's Syphilis.—Kolle used reinfection as an indicator of the cure in syphilitic rabbits. Arsphenamin was successful in 80-90 per cent. of the animals in the early stage. Intramuscular injections of mercurial preparations cured about 37 per cent. under the same conditions, although many of these animals died from mercurial poisoning. It was impossible to obtain reinfection in rabbits, if the treatment was instituted as late as from four to twelve months after the infection.

Physical Diagnosis with Tuning Fork.—Eisner uses a tuning fork (A 1=435) of 16 cm. length and a base 2 cm. in diameter, for his modification of auscultatory percussion. The changes in the strength and quality of the tone are utilized for determination of the borders of the heart, aorta, liver and lungs.

Specificity of Wound Hormones.—Nasvytis injected an emulsion of bone marrow in animals of the same species. He observed regularly an increase in the number of red cells. Injection of brain emulsion had no effect on the blood.

Medizinische Klinik, Berlin

20: 1233-1266 (Sept. 7) 1924

*Influenza and Lung Abscess. H. Dorendorf.—p. 1233.
*Blood Calcium in the Neurotic. F. Glaser.—p. 1237.
*Retention of Fragments of the Placenta. H. H. Schmid.—p. 1241.
*Clinical Analysis of Amyloidosis. O. Koref.—p. 1243.
Roentgen-Ray Treatment of Tuberculosis. H. Fritsch.—p. 1244.
Sedimentation Test in Gynecology. G. Wachholtz.—p. 1249.
Sedimentation Test with Ulcer and Cancer. K. Isaac-Krieger and H. Kalisch.—p. 1251.
Obstetric Breviary. F. Eberhart.—p. 1253. Cont'n.
Recent Works on Anatomy and Biology from Orthopedic Standpoint. S. Peltesohn.—p. 1254.
Social Insurance and Physicians. Wreschner.—p. 1265.

Influenza and Lung Abscess.—Dorendorf observed spontaneous recovery in nineteen out of his thirty-one cases of abscess of the lungs after influenza. Nine patients, four of whom died, required an operation. Three of the other cases ended fatally. The treatment is simple: Quincke's advice of a posture which facilitates evacuation of the pus, and restriction of fluid intake.

Blood Calcium in the Neurotic.—Glaser found considerable differences in the calcium concentration of the serum on different days in certain patients with functional neuroses and emotional changes (depression, dementia praecox, hysteria, acrocyanosis, etc.).

Retention of Fragments of the Placenta.—Schmid considers a premature Credé's expression as the most important cause of crushing and retention of parts of the placenta. Therefore, the only rational sequence of procedure after delivery of the child is as follows: The physician has to ascertain whether or not the placenta is loose and leaving the uterus. In this case, expression is easy. If bleeding continues, with the placenta still attached in the uterus, compression of the abdominal aorta—preferably manual—after emptying the bladder is indicated. The next step is injection of the placenta through the umbilical vein with 500-600 c.c. of boiled water. Credé's method of expression is easy after this turgidization. If the Credé is applied before this, the injection is not complete because some vessels burst. The injection of the delivered placenta with milk makes the retention of parts more apparent. Removal of them at once is much less dangerous than later.

Clinical Analysis of Amyloidosis.—Koref found in a case of amyloidosis in a child, over 10 per cent. of proteins in the blood. The proportion of albumin to globulin was 1:4. Injected congo red (Bennhold's method) disappeared from the blood stream a little faster than normal.

20: 1267-1310 (Sept. 14) 1924

*The Brain in the Epileptic Seizure. Pötzl and Schloffer.—p. 1267.
*Primary Cancer of the Bronchus. O. de la Camp.—p. 1270.
*Internal Secretion. A. Kohn.—p. 1272.
*Vessel Pains and Hypertension in the Menopause. J. Wiesel.—p. 1274.
*Secondary Bleeding After Gastric Surgery. H. Schloffer.—p. 1276.
*Vesicular Eruptions in Infants. R. Fischl.—p. 1279.
*Resection of Optic Canal in Steeple Skull. A. Elschnig.—p. 1281.
*Multiple Primary Foci in Tuberculosis. A. Ghon and H. Kudlich.—p. 1282.

Malaria Treatment of Neurosyphilis. Scherber and Albrecht.—p. 1285.
*Medicolegal Aspects of Hydrophobia. A. M. Marx.—p. 1287.
Adiposogenital Dystrophy. E. J. Kraus.—p. 1290.
*Microstructures of Organic Substances. H. Mark.—p. 1292.
Local Anesthetics. E. Hesse.—p. 1293.
Recent Works on Disease of Heart and Vessels. E. Edens.—p. 1295.
Idem on Urology. Paschkis.—p. 1297.
Sport as Therapeutic Agent. Kirchberg.—p. 1307.
Early Diagnosis of Tuberculosis. E. Hoke. Supplement.—p. 1.
Roentgen Findings in Pulmonary Tuberculosis. Herrnheiser. Supplement.—p. 6.
Tuberculosis in Nurslings. B. Epstein. Supplement.—p. 21.

The Brain in the Epileptic Seizure.—Pötzl and Schloffer observed a local edema of the surface of the brain coincident with a seizure during the operation for jacksonian epilepsy. They produced similar changes in a dog by faradic stimulation of the brain cortex.

Primary Cancer of the Bronchus.—Camp publishes his experiences on fifteen primary cancers of a bronchus. All the patients were men. There was no cachexia in the beginning. Blood stained sputum was a frequent early sign.

Internal Secretion.—Kohn discusses the present conception of internal secretion. He is very skeptical as to the endocrine function of the anterior pituitary and of the chromaffin system. The richness of nerve tissue and morphologic evidence of their endings around the cells recalls that of the cells of sense organs, and makes an afferent action possible. He believes that the interstitial cells of the gonads suggest a storage of substances for the sexual cells, rather than an endocrine function.

Vessel Pains and Hypertension in the Menopause.—Wiesel describes pains localized in the blood vessels (vasalgia) which occur in the menopause. They are different from those associated with spasms and causing intermittent claudication. The vessels in the bend of the knee are a point of predilection, as well as the saphenous vein. It is premature to diagnose an angina pectoris in mere aortalgias of these women, especially if tachycardia is present. Regional paresthesia may accompany them. The climacteric hypertension occurs typically in attacks, followed by bradycardia and large pulses and associated with hot flashes, headache or dizziness. They resemble the symptoms produced by an epinephrin injection.

Secondary Bleeding After Gastric Surgery.—Schloffer observed within a short time six instances of grave secondary bleeding from the sutures of operations on the stomach. One in this group died without relaparotomy; one in spite of it. He warns against expectant treatment in such cases, and prefers reopening of the stomach.

Vesicular Eruptions in Infants.—Fischl draws no strict line between vesicular and pustular eruptions in infants. Deep subcutaneous abscesses originate frequently from the sweat glands. True furuncles are rare, because the hair and sebaceous glands are not fully developed. The nutritional injury from flour predisposes to the gravest purulent affections. Pustules containing spirochetes appear sometimes before the typical manifestations of syphilis. They are highly infectious. He believes that he has provoked purulent infections by bismuth treatment.

Resection of Optic Canal in Steeple Skull.—Elschnig believes that it is practically impossible to remove the upper border of the optic canal with Hildebrand's intra-orbital method. He recommends, therefore, Schloffer's original technic.

Multiple Primary Foci in Pulmonary Tuberculosis.—Ghon and Kudlich publish a detailed report on the lungs of a child, 3½ years of age, who died from purulent meningitis. There were seventeen calcified foci in the lungs, which were probably all remnants of a multiple primary tuberculosis.

Medicolegal Aspects of Hydrophobia.—Marx's paper contains statistics on the frequency of hydrophobia in the Czechoslovak Republic. Of the twelve persons who died from it in 1921, nine had no preventive treatment at all. One came too late; another died during treatment, and a third discontinued it. He reports some medicolegal cases—one of them concerning a physician who was sued for not having sent a patient for treatment, although he had reported the case, and had asked that the suspicious dog be observed.

Microstructures of Organic Substances.—Mark reviews the results of the investigations on the structure of organic substances with roentgen rays. The interference phenomena give and promise fine results not only in the study of crystals, but also in biology. One of them is the proof that a molecule of cellulose cannot consist of more than four molecules of glucose. Both cellulose and silk consist of extremely minute crystals arranged in a definite way.

Münchener medizinische Wochenschrift, Munich

71: 1227-1262 (Sept. 5) 1924

Maximum Performance by Psychic Influence. Bier.—p. 1227. Cont'd.
*Subjective Disturbances in Hypertension. F. Kauffmann.—p. 1230.
*Tuberculosis of China Workers. Brinkmann.—p. 1233.
*Fracture of Sesamoid Bone of Big Toe. K. Koch.—p. 1235.
Papillomas of Renal Pelvis. Steinthal.—p. 1238.
Local Treatment of Epididymitis. H. Holzamer.—p. 1239.
Wassermann's Tuberculosis Reaction. O. Wiese.—p. 1240.
Hemangioma of Spinal Canal. K. Hille.—p. 1241.
Gonorrhea of Para-Urethral Duct. H. Mühlpfordt.—p. 1242.
Dizziness. H. Curschmann.—p. 1243.
Expert Examination for War Disabilities. Barthelmes.—p. 1245.

Subjective Disturbances in Hypertension.—Kauffmann reports on the frequency of various complaints among his forty-eight patients with essential hypertension. Migraine after adolescence, morning headache, dizziness and rheumatic pains occurring especially with changes of weather, intolerance for high temperatures, and fatigue, affecting sometimes only one extremity, are almost characteristic. The vasomotor excitability sometimes causes palpitations.

Tuberculosis of China Workers.—Brinkmann discusses the relation between chalicosis and tuberculosis in china workers. He confirms the experience that tuberculosis predominates between the ages of 25 and 40, while chalicosis affects the more resistant between 40 and 50.

Fracture of Sesamoid Bone of Big Toe.—Koch observed two instances of fracture of a sesamoid bone of the big toe. The treatment consists in rest, early massage and hot air. The prognosis is good.

71: 1263-1298 (Sept. 12) 1924

After-Treatment of Empyema. Perthes and Haussecker.—p. 1263.
*Carotid Pressure Reflexes. H. E. Hering.—p. 1265.
Iron and Arsenic Preparations. Morawitz.—p. 1266.
*Status Asthenicus. O. v. Dehn.—p. 1269.
Hemoglobin Estimation. H. Kämmerer and A. Schaulin.—p. 1271.
*Peritonitis in Tabes. J. Preuss and A. Jacoby.—p. 1273.
Specific and Nonspecific Treatment. G. Scholz.—p. 1274.
Bismuth Treatment of Syphilis. H. Bieder.—p. 1275.
*Diagnosis of Dilatation of Esophagus. H. Friedrich.—p. 1278.
Senile Gangrene. K. Barth.—p. 1278.
Color Index. O. Ranke.—p. 1279.
*Maximum Performance by Psychic Influence. A. Bier.—p. 1279. Begun p. 1227.
Diabetes Mellitus. F. Umber.—p. 1282.
Expert Examination of War Disabilities. A. Schmitt.—p. 1284.
Acidity of Gastric Juice. F. W. Knipping.—p. 1298.

Carotid Pressure Reflexes.—Hering traced the path of the carotid pressure reflexes to a branch of the glossopharyngeal nerve. Section of this nerve causes an increased blood pressure, and abolishes the carotid reflexes. Stimulation of its central stump lowers the blood pressure more than stimulation of the depressor nerve. He proposes to call this branch of the glossopharyngeal nerve the sinus nerve.

Status Asthenicus.—Dehn considers enteroptosis as a functional disturbance due to weak innervation of the suspensory apparatus of the bowels, the subjective disturbances being due to a stretching of the nerves.

Peritonitis in Tabes.—Preuss and Jacoby's patient had been suffering since 1913 from gastric ulcer with hematemesis, and was treated with gastro-enterostomy. In 1919 tabes was diagnosed. He entered the hospital in 1923 on account of hematemesis and tarry stools. The pulse was small, soft, 60-90 per minute; the temperature was below 37.3 C.; the abdomen was soft, and there were no pains. He died after three days. Necropsy revealed peritonitis due to perforation of a jejunal ulcer.

Diagnosis of Dilatation of Esophagus.—Friedrich's patient was a girl, 10 years of age, who had paroxysms of coughing every evening when lying down, not relieved until she vomited. The cause was at last found in a dilatation of the esophagus due to a hysteric cardiospasm.

Maximum Performance by Psychic Influence.—Bier analyzes instances of surprisingly great feats which were accomplished, evidently, by the influence of the mind. He mentions as instances skilful high jumping by an otherwise clumsy epileptic, and the flight of domesticated geese hearing the cry of wild geese, while the same animals were not able to fly when threatened by a dog. He uses much of his autobiography as instances. Esmarch believed that the normal rest of the sphincter of the bladder or of the cardia is in contraction, similar to the muscle of oysters. Relaxation of these muscles is their active phase. Therefore, the so-called cardiospasm may be in reality a paralysis.

Zentralblatt für Gynäkologie, Leipzig

48: 1993-2056 (Sept. 13) 1924

*Virulence Tests and Operative Mortality. E. Bumm.—p. 1994.
Virulence in Streptococcus Infection. E. Philipp.—p. 1999.
*Radiotherapy in Gynecologic Hemorrhage. G. Halter.—p. 2000.
*Hemianopia in Pregnancy. E. Holm.—p. 2007.
*Roentgenotherapy in Epilepsy and in Migraine. M. Fraenkel.—p. 2008.
Case of Phlegmon in Pelvis. A. W. Chochlow.—p. 2017.

Virulence Tests and Operative Mortality.—Bumm found in women with cancer of the uterus virulent streptococci in about 20 per cent. of the cases, using the Ruge-Philipp test. In patients with operable tumors, the incidence was about 10 per cent. These are the cases which cause the high surgical mortality. Three out of four women with virulent streptococci died, and the fourth recovered only after a grave abscess. Only one died out of sixty-eight women with avirulent streptococci. The significance of the virulence was also manifest in cancer of the vulva. Local disinfection with cautery and silver nitrate, as well as the increase of immunity by inoculations and vaccines have been without success. It is evident that operative measures are contraindicated in women with virulent cocci. Even radium has to be used with caution.

Radium Treatment in Gynecologic Hemorrhage.—Halter explains that in menorrhagia and metrorrhagia, of noncancerous origin, the radium should be applied in the uterus and not in the vagina, as the walls of the uterus are thicker, and are consequently less exposed to injury from treatment. He uses rather a small dose of rays in climacteric hemorrhages, in order to maintain, if even a weak, menstruation. The results are better with radium than with roentgen rays, especially in menorrhagia.

Hemianopia in Pregnancy.—Holm refers to some American statements that a bitemporal hemianopia is a regular phenomenon at the end of pregnancy. He tried to determine if the labor pains are not more severe in cases with hemianopia. The presumption is that the disturbance is a manifestation of a markedly enlarged pituitary. The enlargement may be accompanied by an increased functioning of the gland, and by more severe pains. No conclusion could be made, as hemianopia was found in only one of the forty-five pregnant women close to term.

Roentgenotherapy in Epilepsy and in Migraine.—Fraenkel cites several cases of epilepsy, connected with menstruation, which were treated successfully with roentgen rays, and reports two others personally observed. One patient recovered after five irradiations, and no seizure was manifest as late as two and a half months; another received ten irradiations, with no recurrence of seizures noted up to six months. The results from roentgenotherapy were also encouraging in three instances of migraine, which usually appeared before, during or after the menses. Five and eight, and in one case a single irradiation, sufficed to banish the migraine. After four months one irradiation was employed in two patients, for certain precursor symptoms of migraine.

Zentralblatt für innere Medizin, Leipzig

45: 745-760 (Sept. 13) 1924

*Epinephrin Reaction in Diabetes. E. Kylin.—p. 745.
Survey on Pharmacology. C. Bachem.—p. 750.

Epinephrin Reaction in Diabetes.—Kylin found in young diabetics with normal blood pressure, an increased reaction to epinephrin injections (exaggerated rise in blood pressure and blood sugar). In older diabetics with hypertension, the response was less than in normal subjects, the same as in essential hypertension.

Mededeel. v. d. Burg. Geneesk. Dienst, Batavia

249-320, 1924. English Edition

Taste and Smell of Water Sterilized by Chlorin. Mom.—p. 249.
*Malaria Treatment of General Paralysis. Van Loon and Kirschner.—p. 271.
Pictures in Mentality Tests in Java. Engelhard.—p. 282.
Conservation of Bacteria and Rabies Virus. Kirschner.—p. 294.
Keeping Capacity of Pasteurized Milk. Van Berkhout.—p. 302.
*Latah in the Malay Races. F. H. van Loon.—p. 305.

Malaria Treatment of General Paralysis in Java.—Van Loon and Kirschner inoculated twelve men with general paralysis with the parasites of malignant (4) or benign (8) tertian malaria. One treated with the malignant tertian (the use of the malignant type was inadvertent) was seriously ill for a month but, when the malaria was cured under quinin, the general paralysis was found improved to such a degree that earning capacity was restored. All but four of the twelve were refractory to the inoculated disease, having lived in the tropics from birth. One in an early stage, treated with benign tertian was much improved. The natives of the tropics have a predisposition to ulceration of the skin, and the manifestations of syphilis display a predilection for the skin. As the skin seems to play an important part in the formation of antibodies, this may explain the refractory behavior to inoculation of malaria. The course of the syphilis also may be influenced by the recurring febrile diseases common in the tropics.

Latah in Malay Races.—Van Loon sent a questionnaire to physicians in the Dutch East Indies to obtain data on latah, a psychoneurosis common in the Malay races. A total of 169 cases was thus compiled from the experiences of eighty-four physicians; 97 per cent. of the patients were women. The onset is usually with a fright in an erotic dream, and the whole course is an affective reaction, a pathologic intensification of the normal mental qualities of the Malay races.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1096-1194 (Aug. 30) 1924

*Case of Kala-Azar at Amsterdam. Woltring and Hulk.—p. 1096.
Prevalence of Anopheles at Amsterdam. Swellengrebel.—p. 1113.
White Precipitate Ointment in Tuberculosis. Henneman.—p. 1126.
*Blood Pressure in Raised Arm. Auke van Balen.—p. 1129.
*Cancer of the Esophagus. H. J. J. Blauwkuip.—p. 1131.
Congenital Hypoplasia of the Skin. W. J. Bais.—p. 1138.

Kala-Azar.—In connection with an imported case of kala-azar at Amsterdam, Woltring and Hulk review the present status of knowledge on this disease which they say has never been observed before in the Netherlands. It is also extremely rare in the Netherlands East Indies; no autochthonous cases have been known.

Varying Blood Pressure in Different Regions.—Van Balen gives the findings in fifteen cases in which the blood pressure was recorded on the arm raised vertically, for comparison of the two sides, and of the difference from the findings with the arm in the usual position for measurement of the blood pressure. This may give the clue to explain certain pains in the elderly. In one woman, aged 60, with transient right cerebral hemiplegia, the systolic pressure on the right side was 215 and the diastolic 125 at the time of the apoplexy, but only 185 and 115 on the left side. A week later, the right systolic was 180 and the diastolic 100, while the pressure on the left side was 185 systolic and 115 diastolic.

Cancer of the Esophagus.—Blauwkuip found the esophagus permeable and the cadaver well nourished in 10 of 125 necropsies of cancer of the esophagus. It is not true therefore that death is always due to starvation. The duration of the malignant disease could not be definitely determined from the necropsy findings. In 69 cases perforation had occurred, with extension into other organs in 13 instances. In 11 cases the perforation had been into the right lung and only once into the left. In 80 cases there were metastases in remote organs, and the lymph glands showed involvement in all but 59. In 49 cases the cancer seemed to be restricted to the esophagus, at least macroscopically. There were 112 men to 13 women in the total 125, and only one man and one woman were under the age of 40.